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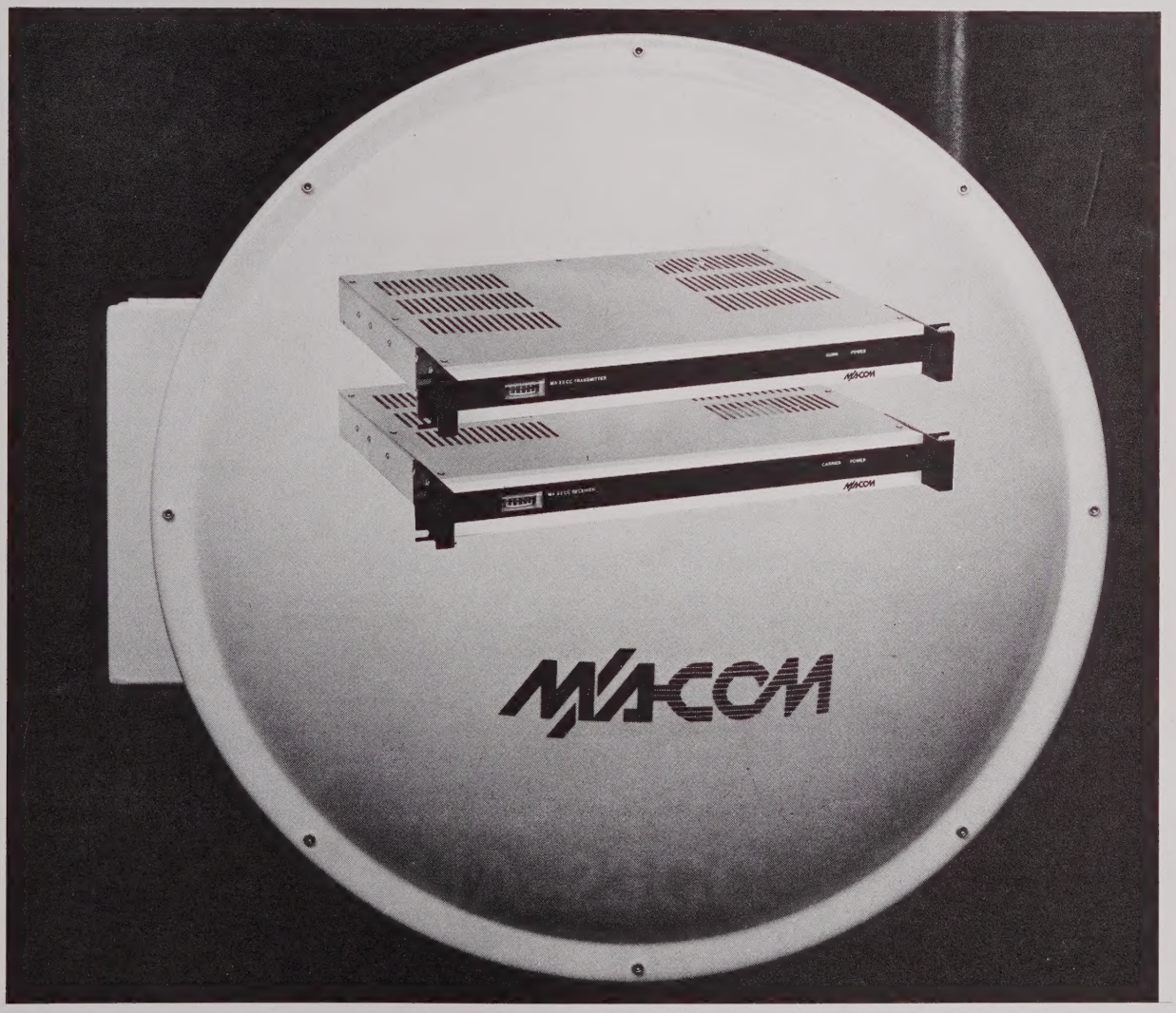
EXCELLENCE IN COMMUNICATIONS

MA-23CC

23 GHz WIDEBAND

MICROWAVE RADIO SYSTEM



MAINTENANCE MANUAL

WARNING

MA-23CC BASEBAND UNITS ARE DESIGNED FOR INDOOR USE. TO REDUCE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE UNITS TO RAIN OR MOISTURE.

CAUTION

This installation should be made by qualified service personnel and should conform to all local and national codes.

The services of a structural engineer are recommended to insure that mounting of outdoor equipment (antennas, RF boxes, etc.) does not constitute a hazard to personnel and does not exceed tower or structural load ratings under anticipated environmental conditions.

CAUTION

MA-23CC Systems are provided with lightning surge protection circuits. The equipment must be connected to station ground using standard grounding practices in accordance with all local and national codes.

M/A-COM MAC, Inc. will not be liable for damages to equipment incurred as a result of failure to ground the system properly.

CAUTION

To reduce the risk of electric shock, do not remove cover. No user serviceable parts inside.

Refer servicing to qualified service personnel.

CAUTION

For continued protection against fire, replace fuses only with same type (as marked).

Refer replacement of internal fuses to qualified service personnel.

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NOTE:

1. Meter Assembly PN 1841749-1 – See Section 5
2. Video Low Pass Filter PN 1841778– See Section 5
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SECTION 1
INTRODUCTION

SCOPE

This manual provides maintenance and troubleshooting information for the MA-23CC 23 GHz, Wideband Microwave Radio Systems.

The contents of this manual are as follows:

Section 1 – Introduction

Section 2 – Theory of Operation

Section 3 – System Alignment and Checkout

Section 4 – Maintenance and Troubleshooting

Section 5 – Engineering Diagrams

Section 6 – Parts Lists

GENERAL

The MA-23CC System is a low cost, solid-state FM analog microwave radio system that provides up to 12 MHz of baseband bandwidth in the 21.2 to 23.6 GHz frequency band with a full range of system options. The MA-23CC System is ideal for a wide variety of professional broadcast quality and high resolution video applications up to 15 miles. With the use of high speed modems, the MA-23CC can be used for data transmission up to 20 Mbps, or up to 12 T1 (575 phone lines).

The MA-23CC adapts to a wide range of applications including teleconferencing, medical, and CAD/CAM image transmission, satellite backhaul, and surveillance. It is normally used for one or two-way transmission of full color 525 line video with up to three audio subcarriers. In the medical and CAD/CAM markets, it is used for high resolution (1024 x 1024 lines) video and transmission.

The compact, lightweight MA-23CC System is engineered to provide troublefree performance and simplicity of operation with a full range of system configuration options. Easy access is provided to all RF and electronic assemblies. Transmitter and Receiver antenna assemblies consist of weather-resistant integrated antenna/RF assemblies designed for outdoor use and rack mountable indoor Transmitter and Receiver Baseband Units containing power supply and baseband circuits. Interconnection between indoor and outdoor units is via coax cable and power cable.

SECTION 2
THEORY OF OPERATION

GENERAL

The incoming video and audio/data signals are applied to the Transmitter Baseband Unit for processing and combining into a composite baseband signal. This baseband signal is sent via interconnecting cable to the transmit side of the Duplex RF Assembly. Here, the baseband signal modulates an internally generated 23 GHz RF carrier that is routed to the antenna for propagation over a line-of-sight (LOS) microwave signal path to the receive site.

TRANSMITTER BASEBAND UNIT

The Transmitter Baseband Unit is composed of four subassemblies: Transmitter Power Supply, Baseband Board, Subcarrier Transmitter (optional), and Video Low Pass Filter (optional). The functional block diagram and signal flow paths are shown in Figure 2-1.

TRANSMITTER BASEBAND BOARD. A video signal applied to VIDEO IN first passes through an optional Video Low Pass Filter to remove unwanted higher order signals (if present). The video gain is determined by R2. Next, the video response is predistorted to help compensate for the cable response. The BB IN is an auxiliary input, the gain of which is approximately the same as the VIDEO IN. This gain is adjusted by R6. The video, baseband, and all subcarrier Transmitter signals are all summed and this composite signal is then amplified by the first video amplifier. Following this stage is an R-C pre-emphasis network, the response of which is adjusted by R26 and R27. The pre-emphasized composite signal is again amplified by a second video amplifier to an amplitude of 2V P-P at the pre-emphasis crossover frequency. This signal is present on a Type F connector labeled BB OUT for connection to the RF Assembly.

Also on the Transmitter Baseband Board is the alarm driver circuit and a SPDT alarm relay. The alarm driver receives a +5.0V logic signal from the power supply indicating that the Gunn Transmitter Source, located in the RF Assembly is drawing current. This signal energizes the alarm relay and closes terminals COM and 2 on the rear panel barrier strip labeled ALARM. A front panel LED is also energized. Additionally, a front panel meter gives a relative indication of Gunn current. A fuse (2A) on the TX BB Board protects the power supply from overcurrents on the DC OUT line.

If the line is accidentally shorted or if the Gunn Transmiter shorts, the fuse opens and the alarm logic goes low, closing terminals COM and 1 on the barrier strip. All customer available relay terminals are floating.

Audio inputs are connected to rear panel connectors labeled AUDIO 1 through AUDIO 3.

SUBCARRIER TRANSMITTER. The plug-in Subcarrier Transmitter is shown functionally in Figure 2-2.

Audio signals are first terminated in a 600 ohm balanced impedance. The input to U1A and consequently, the subcarrier deviation is controlled by R5. The output of U1A is connected to a strappable pre-emphasis. If jumper W1 is in position E1/E2, pre-emphasis is connected. If jumper is moved to position E2/E3, pre-emphasis is disconnected. The modulation sensitivity at 1 kHz is not changed in either jumper position. The modulating signal is further amplified by U1B and fed to a varactor in the VCO (voltage controlled oscillator). The VCO carrier frequency is controlled by a crystal referenced PLL (phase locked loop). The FM subcarrier is further amplified by a tuned buffer amplifier and resistively isolated from the Transmitter Baseband Board. The subcarrier level can be controlled by R25.

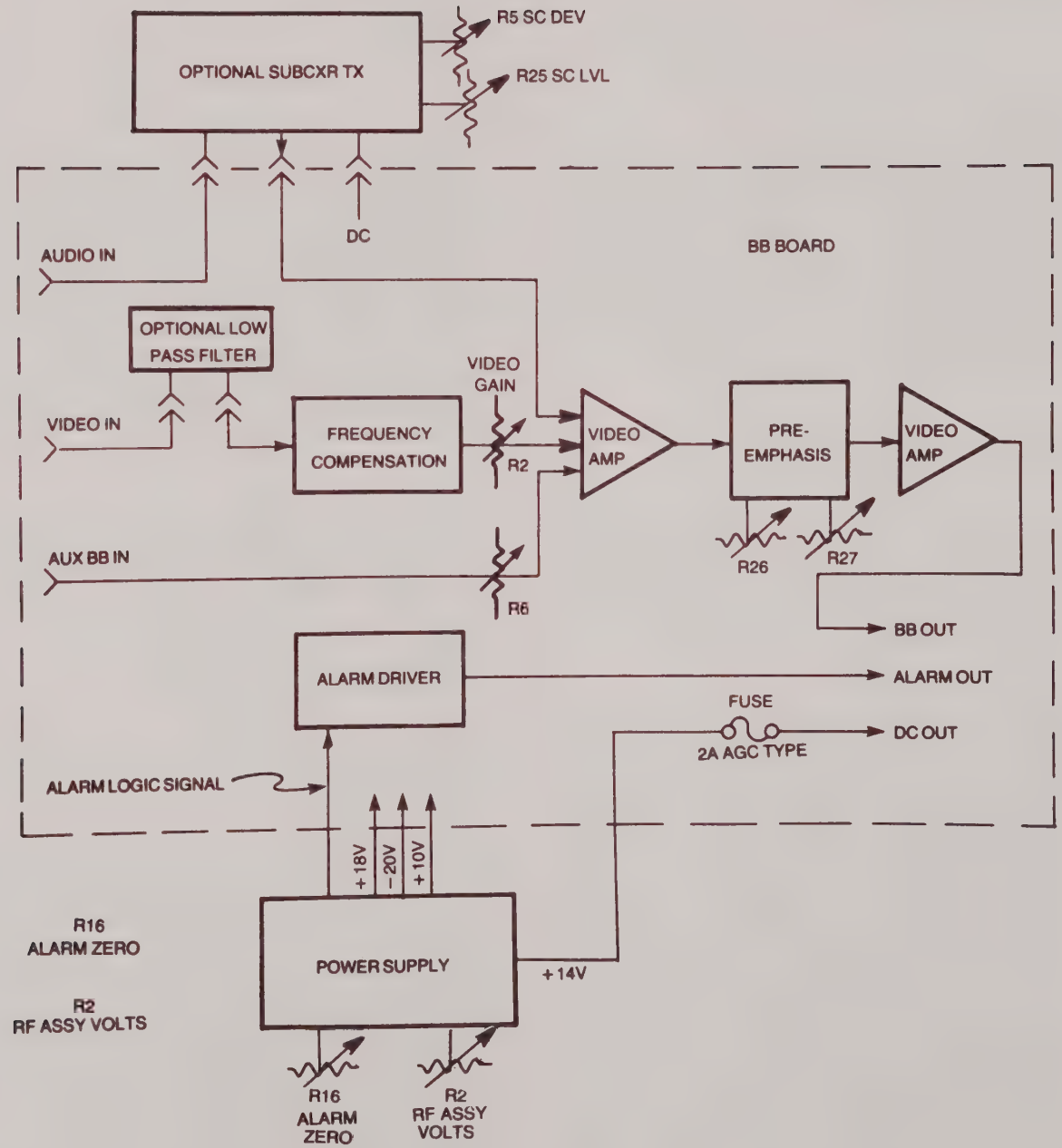


Figure 2-1. Transmitter Baseband Unit – Functional Block Diagram and Signal Flow

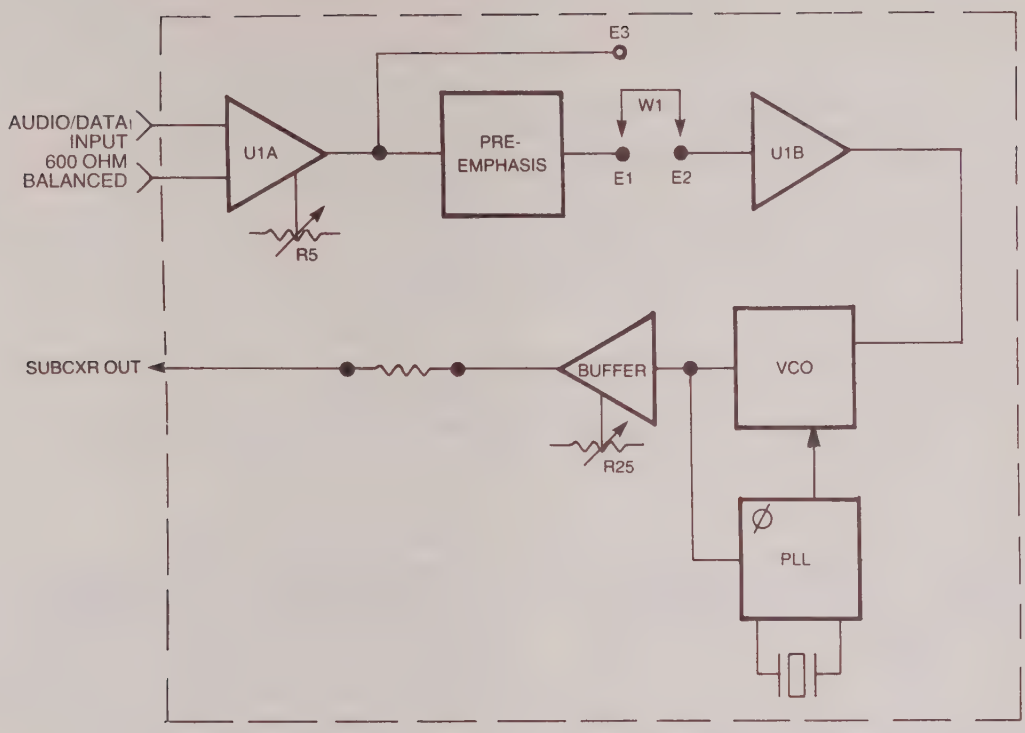


Figure 2-2. Subcarrier Transmitter – Functional Block Diagram

TRANSMITTER POWER SUPPLY. AC power is connected to the Power Supply via a mains selector card. To change input supply voltage, the fuse must be removed, then the mains selector card can be removed, oriented for the appropriate voltage and reinserted. Available mains are 100/120, and 220/240 Vac. A functional block diagram of the Transmitter Power Supply is given in Figure 2-3.

The ac power input is fused and applied to the primary winding of transformer T1. Multiple secondary taps on the transformer provide outputs into three bridge rectifiers followed by capacitive input filters. The Power Supply produces three unregulated dc outputs (+10, +18, and −20 Vdc) and a fourth, regulated +14 Vdc output for the Transmitter RF circuit. Regulation of the +14 Vdc supply is intentionally soft to reduce dissipation of the pass transistor to a minimum while still supplying adequately regulated and filtered power to the RF Assembly.

Optional DC/DC Converters are available for operation from −24 or −48 Vdc power sources.

RECEIVER BASEBAND UNIT

The Receiver Baseband Unit is shown functionally in Figure 2-4 and is composed of the following subassemblies: IF Filter Preamplifier, Receiver Demodulator Board, an optional Audio Subcarrier Receiver (up to three), Power Supply, and a Video Low Pass Filter.

IF FILTER PREAMPLIFIER. The IF Filter is the first component in the Receiver IF Chain (Figure 2-5). An IF signal and AGC voltage from the RF Assembly is connected to J1 and terminated in a combination pad and bias tee. The pad assures a good return loss to the outside world, while the bias tee couples off the AGC voltage for use by the squelch and metering circuit. The IF signal is next amplified by U1, then filtered by a 4-pole Bandpass Filter. Following the Bandpass Filter is a group delay equalizer that corrects for the delay of this filter and a similar filter in the RF Assembly. The overall gain of this block is 6 dB. The output of this module is connected by a short piece of coax to the Receiver Demodulator Board.

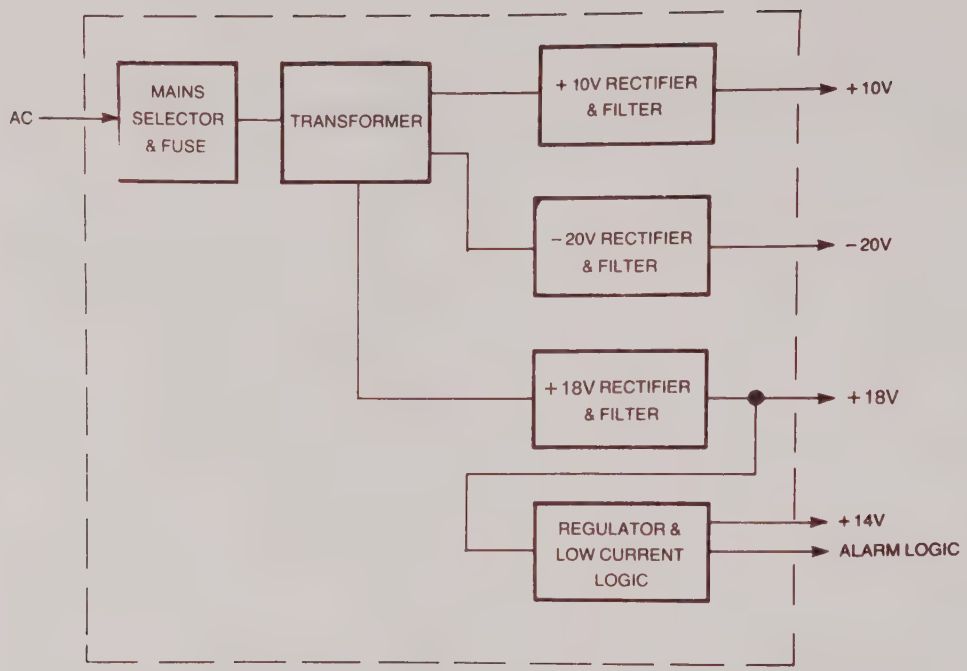


Figure 2-3. Transmitter Power Supply – Functional Block Diagram

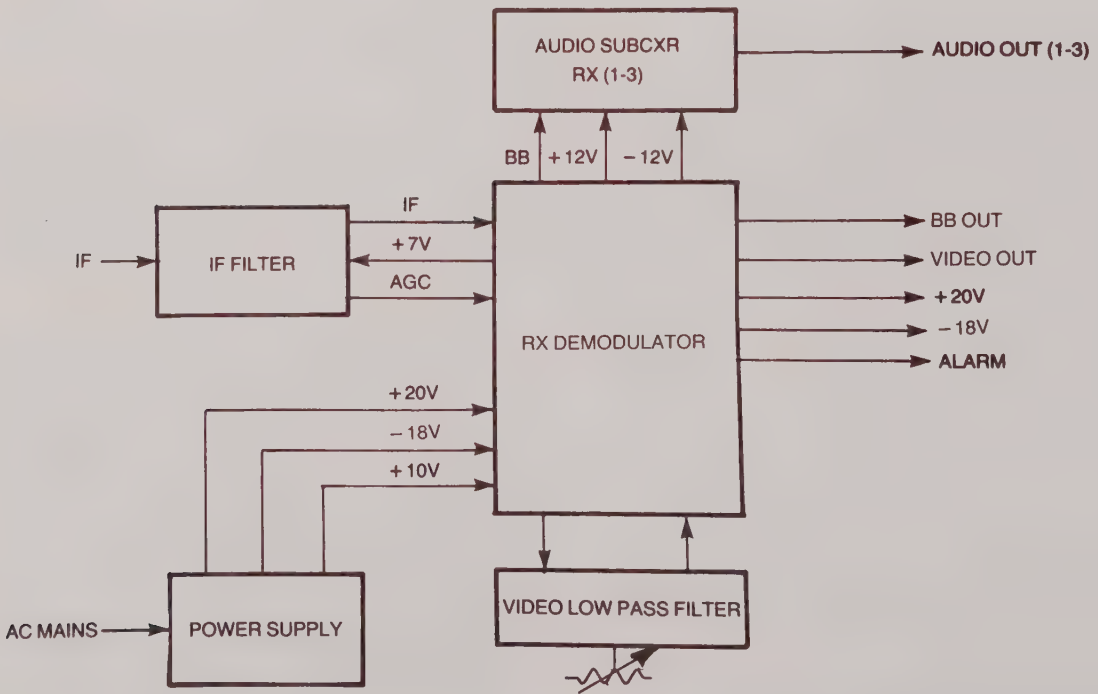


Figure 2-4. Receiver Baseband Unit – Functional Block Diagram

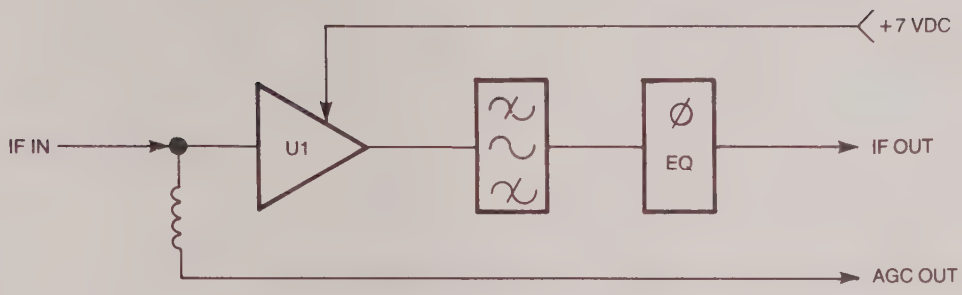


Figure 2-5. IF Filter Preamplifier – Functional Block Diagram

RECEIVER DEMODULATOR BOARD. The Receiver Demodulator Board performs the functions of demodulation, video amplification, squelch alarm, power distribution and serves a motherboard for the Subcarrier Receiver(s), and Video Low Pass Filter. Figure 2-6 is a functional diagram of this unit.

An IF signal from the IF Filter Preamplifier enters at J1 and is applied to an IC Limiter, U1. This signal is further amplified by U3 and demodulated by a tuned LC demodulator. The video signal is amplified by U4 and then de-emphasized by a RC network. De-emphasis adjustments are made by R19 and R22. Next in the video chain is a squelch controlled video amplifier 1. One output of this amplifier feeds the Video Low Pass Filter and the other the baseband amplifier 3. The baseband gain is controlled by R33. The output of baseband amplifier 3 drives the rear panel BB BNC connector through a 75 ohm resistor and the subcarrier distribution buss. The Video Low Pass Filter, on the otherhand, drives the video amplifier 2. The output of video amplifier 2 drives the rear panel VIDEO BNC through a 75 ohm resistor.

The AGC voltage from the IF Filter Preamplifier enters the board from J7 and is amplified by U5A. Resistor R52 is a meter zero control. Intergrated circuit U5A drives the meter and the squelch comparator (with hystersis), U5B. When the AGC voltage is above the squelch trip point set by R60, the output of U5B is high and energizes the LED and the squelch relay. The rear panel relay connection labeled ALARM, COM and 2 are closed.

Unregulated voltages from the Power Supply connect at J9 and are distributed to their appropriate regulators [U7, −12V; U6, +12V, U8, +12V (for Subcarrier Receiver only), U9, +7V, and U2, +5V).

The +20V and −18V unregulated supplies are fused at 2A and 0.5A respectively, and are routed to the rear panel barrier strip DC OUT for connection to the cable supplying dc power to the RF Assembly.

SUBCARRIER RECEIVER. The Subcarrier Receiver is shown functionally in Figure 2-7.

The baseband signal, dc power, and audio output all connect to the board via a row of vertical pins. No soldering is required, making the Subcarrier Receiver easily field installable.

The incoming baseband signal is first filtered by a bandpass filter, then amplified by a single-tuned buffer. The FM signal is then demodulated by the quad detector. Next, the recovered audio is buffered and applied to a strappable de-emphasis network. If de-emphasis is required, jumper W3 is connected between E6 and E5. If flat response is desired, connect W3 between E5 and E7.

In either position, the output level at 1 kHz TT remains constant. The audio level is controlled by R9 and then amplified by U1. The output impedance is strappable at either low impedance (less than 50 ohms) or 600 ohms balanced by using jumpers W1 and W2.

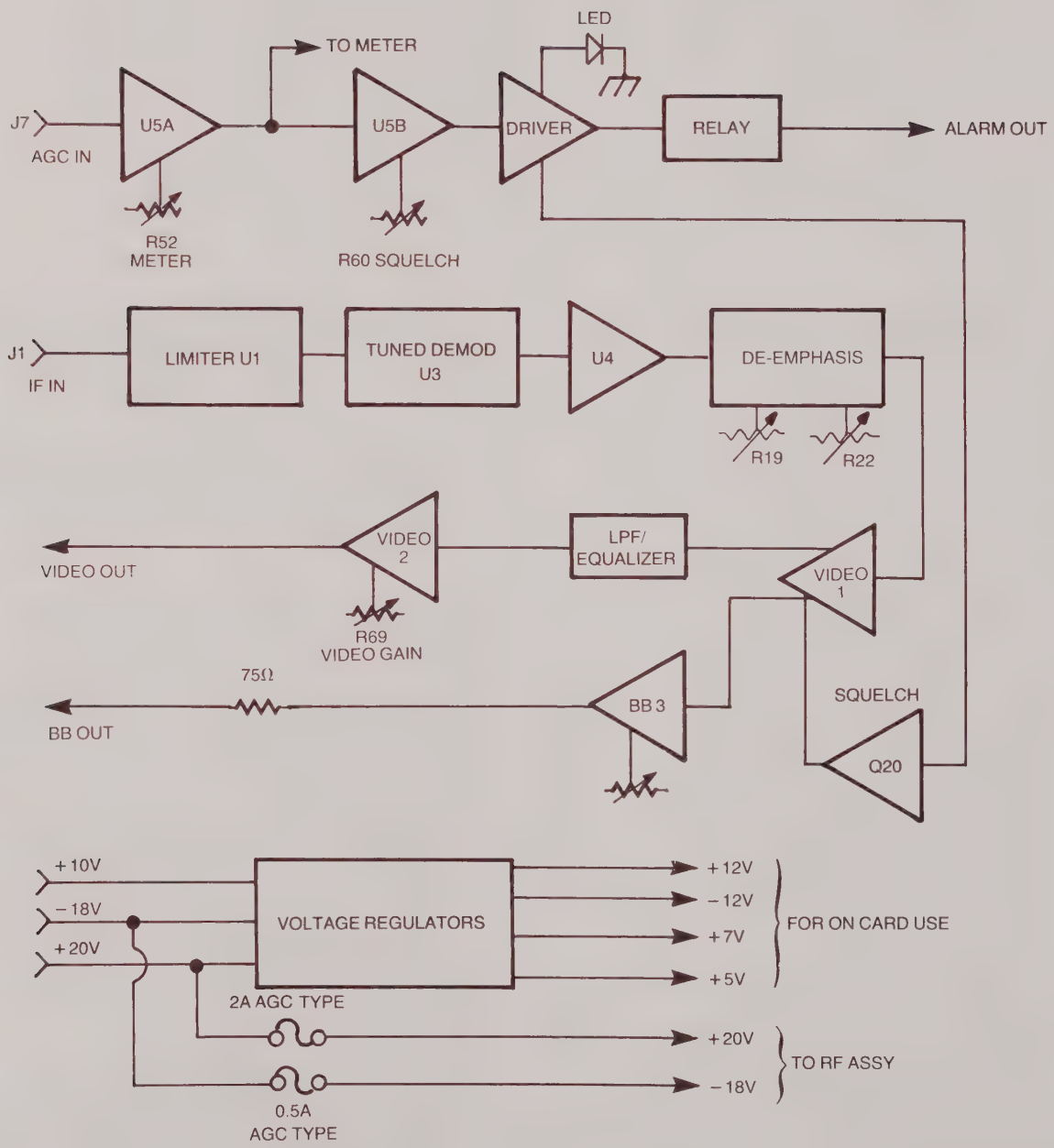


Figure 2-6. Receiver Demodulator Board – Functional Block Diagram

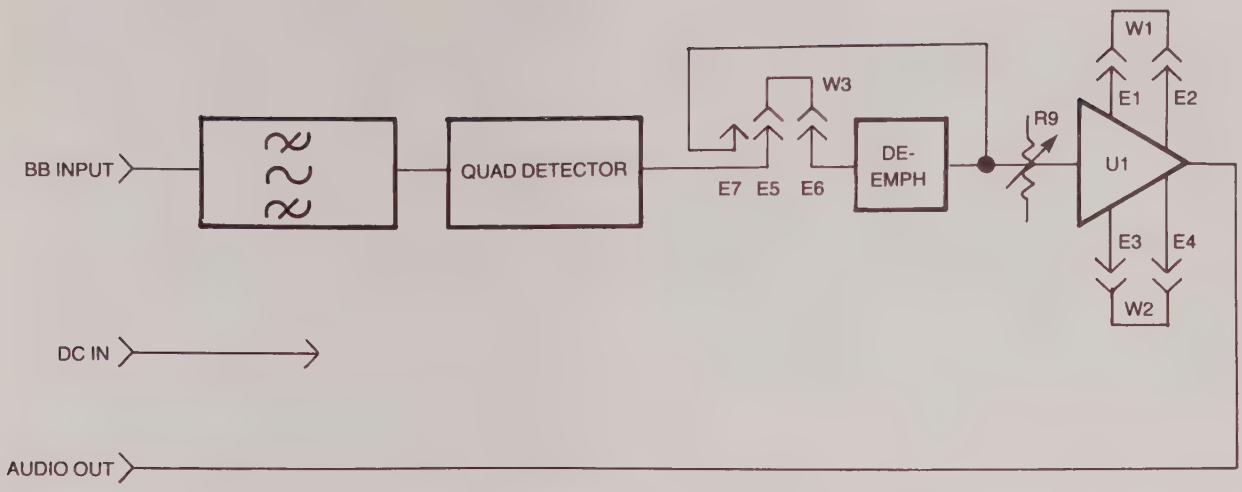


Figure 2-7. Subcarrier Receiver – Functional Block Diagram

RECEIVER POWER SUPPLY. AC power is connected to the Power Supply via a main selector card. To change the input supply voltage, the fuse must be removed, then the mains selector card can be removed, oriented for the appropriate voltage and reinserted. Available mains are 100/120 and 220/240 Vac. A functional block diagram of the Receiver Power Supply is given in Figure 2-8.

The ac power input is fused and applied to the primary winding of transformer T1. Multiple, fused secondary taps on the transformer provide outputs into three bridge rectifiers followed by capacitive input filters. The Power Supply produces three unregulated dc outputs (+10, +20, and −18 Vdc).

Optional DC/DC Converters are available for operation from −24 or −48 Vdc power sources.

DUPLEX RF ASSEMBLY

The Duplex RF Assembly contains the RF branching network, Transmitter RF circuits, Receiver RF Circuits, and an RFI Board. A functional block diagram of the Duplex RF Assembly is given in Figure 2-9.

The flexible design of the RF Assembly allows it to be configured in the standard duplex (transmit-receive) configuration, or as a simplex Transmitter or Receiver when used with Stacking/Combiner Kits for multiplexing.

RF BRANCHING. The RF branching network of the Duplex RF Assembly allows the simultaneous transmission and reception (duplexing) of microwave signals using a single antenna. The RF branching network uses a bandpass filter and unidirectional Ferrite circulators to control the flow of microwave energy. The transmit RF signal enters port 2 of the input/output circulator. Within the circulator, the polarity of internal biasing causes the signal to be circulated in one direction until it finds an impedance match. This occurs at the input/output port (port 3) of the circulator where antenna connections are made.

On the receive side, incoming RF signals are received at the same input/output port (port 3) of the circulator and is circulated to port 1 where it leaves the circulator and is sent to a second circulator which has one of its ports (port 1) terminated with a 50 ohm load. Within the second circulator, the incoming RF signal enters port 2 and is circulated to the next port (port 3). If the RF signal is within the passband of the Receiver's bandpass filter, it finds an impedance match at port 3 and leaves the circulator at that point. Then, the RF signal is bandpass filtered and fed to the Receiver RF circuits for processing. However, incoming RF signals that are not within the passband of the Receiver's bandpass filter, are circulated to port 1 and dissipated into a 50 ohm load.

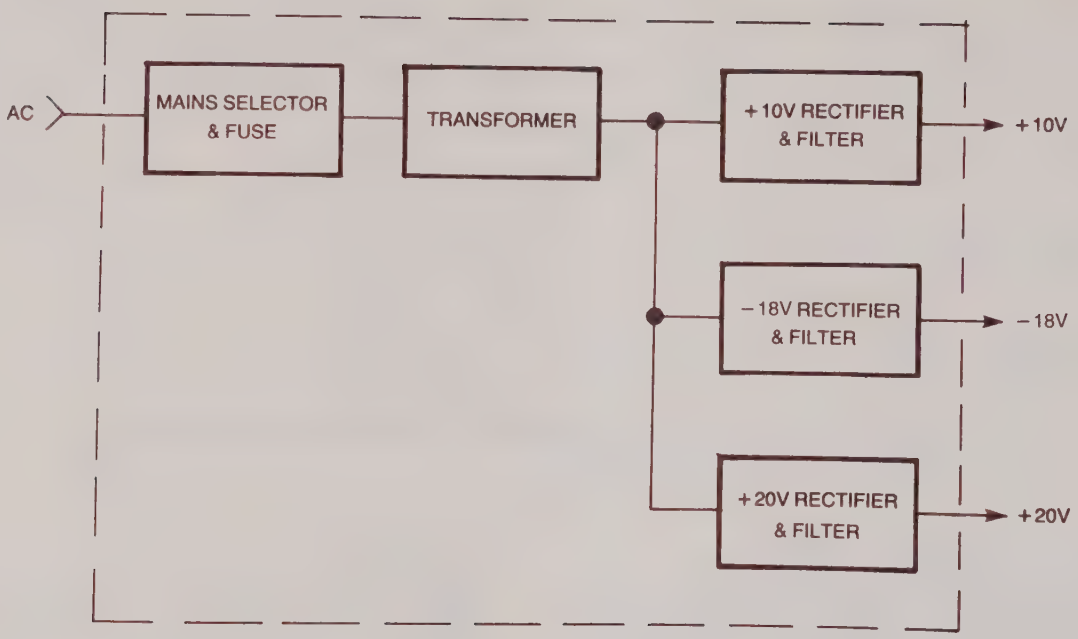


Figure 2-8. Receiver Power Supply – Functional Block Diagram

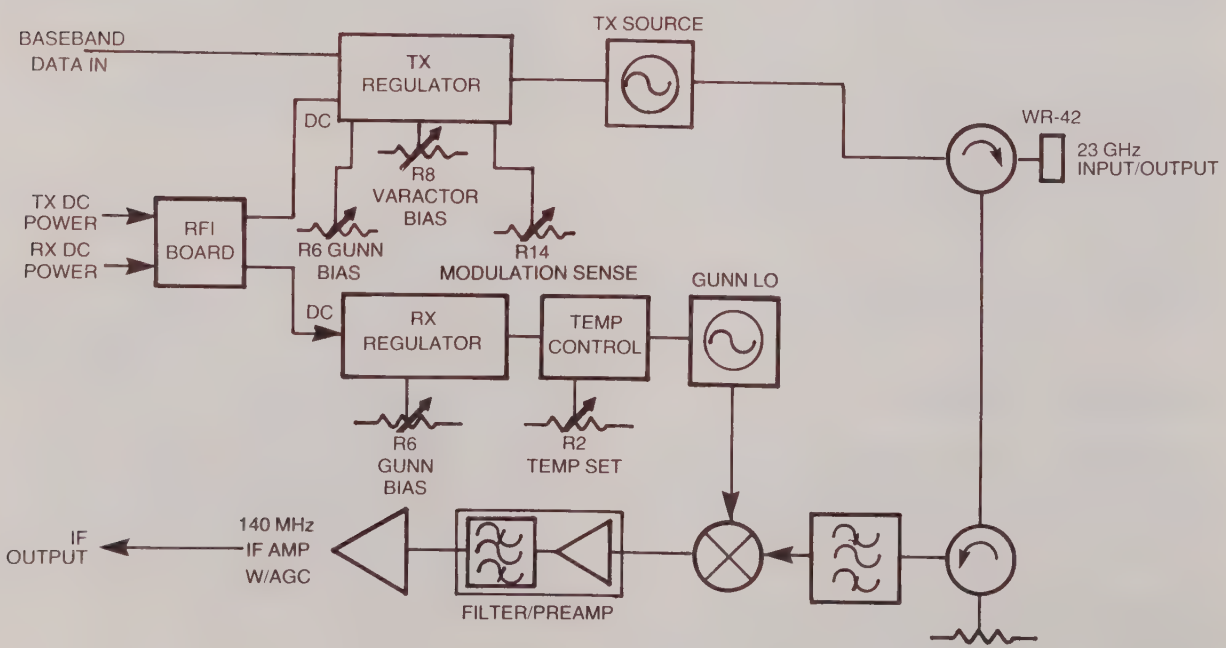


Figure 2-9. Duplex RF Assembly (Unprotected) – Functional Block Diagram

TRANSMITTER RF SECTION (P/O DUPLEX RF ASSEMBLY). The baseband signal from the Transmitter Baseband Unit is sent via coaxial cable to a Type F bulkhead connector on the weather-resistant Duplex RF Assembly. The incoming signal is connected to the heatsinked Voltage Regulator Board by a short piece of 75 ohm coaxial cable. The amplitude of the baseband signal is adjusted by variable resistor R4 for a modulation sensitivity of 4 MHz per volt peak-to-peak. The baseband signal is then combined with a regulated bias voltage adjusted by R8, and connected to the varactor input on the Transmitter Gunn Source where it directly frequency modulates the 23 GHz carrier. The Gunn Source frequency is set by a large, fine thread screw protruding from the top of the Gunn Oscillator. The Voltage Regulator also supplies bias to the Gunn diode (typically 5V at 1.0A), adjustable by R6. Both Gunn and varactor bias are unique to the individual Transmitter Gunn Source.

RECEIVER RF SECTION (P/O DUPLEX RF ASSEMBLY). The incoming 23 GHz RF signal is routed through the RF branching circuits of the Duplex RF Assembly (described earlier) and applied to the 23 GHz Mixer/Oscilaltor which is comprised of a temperature stabilized Gunn Local Oscillator and a Waveguide Mixer for downconversion to a nominal 140 MHz IF. The LO frequency is set by a large, fine thread screw protruding through the thermal driver block near the Temperature Control Board. The IF signal is then applied to the 140 MHz Preamplifier Board where it is amplified and filtered. The overall RF-to-IF gain by the 23 GHz Mixer/Oscillator and 140 MHz Preamplifier combination is approximately 20 dB. The output of the Preamplifier is connected by a short piece of 75 ohm coaxial cable to the input of the AGC'd IF Amplifier where the signal is further amplified to a constant level of -6 dBm. A buffered sample of the AGC voltage appears on the IF output center conductor. The 140 MHz IF and AGC signals are then routed to the Receiver Baseband Unit via coaxial interconnection cable.

RFI BOARD. DC power for the Transmitter and Receiver RF circuits of the Duplex RF Assembly are supplied by their respective Baseband Units via multiconductor interconnection power cables. The incoming dc voltages are applied to the RFI Board that performs three main functions: power distribution, RFI filtering, and transient suppression. Inductor L1 and capacitor C1 form a low pass filter to remove any RF energy that may be present on the power cables, while ferrite bead Z1 provides transient suppression. At voltages above 47V, Z1 appears as a short circuit. At voltages below 47V, Z1 appears as a moderate sized capacitor.

SECTION 3
SYSTEM ALIGNMENT AND CHECKOUT

GENERAL

System alignment and checkout procedures for the 23 GHz Microwave Radio System are outlined in this section of the manual.

The 23 GHz Microwave System is completely aligned at the factory using sophisticated test equipment that is not generally available in the field. These procedures should be performed only when the system fails to meet performance specifications.

A properly aligned system will perform in accordance with the established system specifications. System checkout procedures provide a standard means of determining whether or not the system is in alignment. Should these tests indicate the need, system alignment procedures are provided to restore the system to optimum operational status.

The following procedures check the performance of the system in one direction at a time. First, test the system in one direction, then repeat the tests in the other direction.

Either of two basic test configurations may be used. The preferred method consists of operating on a test bench using path loss test attenuators to control the received signal level. This method is similar to that used in factory testing and should yield comparable results. The second method uses the actual operating path as the RF attenuator and requires an operator at each station with a means of communications between both stations.

These procedures are provided for use by a skilled technician, familiar with the operation of the test equipment required (Table 3-1). Test equipment operating instructions are not included herein except in precautionary notes. Equivalent test equipment may be substituted when necessary.

All test cables should be as short as possible, all impedances should be matched, and terminations correctly located.

NOTE

If difficulty is experienced in obtaining the proper performance during any system test, the test equipment, including all cables and terminations, should be interconnected and tested to determine whether or not the test setup is contributing to the system performance readings in any manner.

MAINTENANCE LOG. Record all measurements and corrective action taken in a maintenance log as reference information for use in future alignment, maintenance, and troubleshooting.

INTERNAL CONTROLS, INDICATORS, AND TEST POINTS

Internal controls, indicators, and test points are listed in Tables 3-2 through 3-5.

ALIGNMENT PROCEDURES

POWER CHECKOUT. Both Transmitter and Receiver Subsystems operate on 120/240 Vac. The Transmitter and Receiver Baseband Units power their respective RF Box Assemblies via interconnecting power cables.

CAUTION

Disconnect Baseband Units from ac mains when installing or removing circuit boards or making any other repairs.

Perform the following procedures with the signal and power interconnection cables installed on the Baseband Units. Do not connect to Transmitter or Receiver RF Box until later.

TRANSMITTER BASEBAND UNIT POWER CHECKOUT (Figure 3-1)

Step 1. Verify that the Baseband Unit is configured for the correct line power (100/120 Vac or 220/240 Vac) by inspecting the Mains Selector Card and ac fuse located on the rear panel of the unit.

Step 2. Remove top cover of Baseband Unit secured by 9 screws for access to internal controls and test points.

Step 3. Connect the ac power cord and apply power to unit. Since the unit is designed for continuous operation, there is no power switch.

Step 4. Using a DVM, make the following checks on connector J7 of the Transmitter Baseband circuit board (Figure 3-1) Pin 1: +18V unregulated; Pins 2,3: +10V unregulated; Pin 8: −20V unregulated).

NOTE

Do not check Transmitter RF Box supply voltage until later. This voltage will be measured at the RF Box when it is added to the system.

RECEIVER BASEBAND UNIT POWER CHECKOUT (Figure 3-2)

Step 1. Verify that the Baseband Unit is configured for the correct line power (100/120 Vac or 220/240 Vac) by inspecting the Mains Selector Card and ac fuse located on the rear panel of the unit.

Step 2. Remove top cover of Baseband Unit secured by 9 screws for access to internal controls and test points.

Step 3. Connect the ac power cord and apply power to unit. Since the unit is designed for continuous operation, there is no power switch.

Step 4. Using a DVM, make the following checks on connector J9 of the Receiver Baseband circuit board (Figure 3-2) Pin 1: +20V unregulated; Pins 2,3: +10V unregulated; Pin 8: −18V unregulated).

NOTE

Do not check Receiver RF Box supply voltage until later. This voltage will be measured at the RF Box when it is added to the system.

TRANSMITTER BASEBAND UNIT ALIGNMENT (Figures 3-1 and 3-3)

Step 1. Check Transmitter Baseband circuit board on-card three terminal voltage regulators; U1 output −12.0 ± 0.5 Vdc, U2 output +12.0 ± 0.5 Vdc.

Step 2. Install a 6 dB pad at the BB OUT connector (J2). Configure the signal source for the pre-emphasis cross-over frequency (761 kHz for 525 line; 1525 kHz for 625 line). Apply 1V P-P to VIDEO IN connector J1 and pre-set R2 for 1V P-P on the waveform monitor.

Step 3. Connect the signal source to the BB IN connector (J2) and pre-set R6 for 1V P-P on waveform monitor.

NOTE

The actual output levels set in Steps 3 and 4 are 2V P-P reduced by the 6 dB pad for compatibility with the waveform monitor.

Step 4. Replace the 6 dB pad at the BB OUT connector with the de-emphasis network and check video performance.

Step 5. Check alarm relay operation at terminal strip TB2 on rear panel of Transmitter Baseband Unit as follows:

a. Check for continuity between terminals 1 and 2 of TB2.

b. On the Transmitter Baseband circuit board, apply +4 Vdc to Pin 10 of connector J7 and check for continuity between terminals 2 and 3 of TB2. Observe that GUNN indicator (DS1) lights.

Table 3-1. Recommended Test Equipment

EQUIPMENT	MANUFACTURER'S TYPE (OR EQUIV.)
Video Signal Generator	Tektronix 1900
Baseband Signal Generator	Hewlett Packard HP8640B
Video Waveform Monitor	Tektronix 1480C
RF Signal Generator	
Spectrum Analyzer	Hewlett Packard HP8559A
Frequency Counter	Hewlett Packard HP5343A
Noise Figure Meter	Hewlett Packard HP8970A
Solid-State Noise Source	Microwave Semiconductor MC51826W
Power Meter	Hewlett Packard HP435A
Power Sensor Head	Hewlett Packard HP8485A
Digital Voltmeter	
Oscilloscope (Calibrated)	
RMS Voltmeter	Hewlett Packard HP3400A
Audio Signal Generator	
Audio Distortion Analyzer	
Variable Attenuator	Hewlett Packard HPK382A
10 dB Fixed Attenuator	Baytron 3-42-109/10
20 dB Fixed Attenuator	Baytron 3-42-109/20
Directional Coupler	Hewlett Packard HPK752C
Waveguide-to-SMA Adapter	Hewlett Packard HPK281C
SMA-SMA Coaxial Cable	Sucoflex 104-3′ 11SMA-11SMA
BNC 50-75 Transit Pad	Tekscan 2M-57
Temperature Probe	Fluke 80T-150
EIA Weighting Network	
EIA High/Low Pass Filter	
EIA Low Pass Filter	

Table 3-2. Transmitter Baseband Unit – Internal Controls

REF DES	FUNCTION
TRANSMITTER BASEBAND BOARD PN 1841546	
R2	Video gain adjustment.
R14*,R34*	Video Amplifier dc balance.
R6	Baseband gain adjustment.
R26*,R27*	Video pre-emphasis adjustment.
W1	Subcarrier #1 disable jumper.
W2	Subcarrier #2 disable jumper.
W3	Subcarrier #3 disable jumper.
W4	Factory test jumper.
W5	Low Pass Filter bypass jumper.
W6	Alarm circuit disable jumper.
W7	Video pre-emphasis select jumper (OUT = 525 line; IN = 625 line)
F1	+ DC power fuse, 2A.
TRANSMITTER AUXILIARY AUDIO (AUDIO #1, 2, or 3) PN 1840806	
R5	Subcarrier deviation adjustment.
R25	Subcarrier level adjustment.
L3,C28	Subcarrier modulation linearity adjustment.
L4	Subcarrier level and linearity adjustment.
TRANSMITTER POWER SUPPLY BOARD PN 1841570-2	
R2	+14V output voltage adjustment.
R16	Alarm threshold adjustment.
Fuse	120 Vac nominal input, 1.0A Slo-Blo or 220 Vac nominal input, 0.5A Slo-Blo.
Mains Selector	Selects 100/120 Vac or 220/240 Vac operation.

*Denotes factory set control – field adjustment not recommended.

Table 3-3. Transmitter RF Box Assembly – Internal Controls

REF DES	FUNCTION
VOLTAGE REGULATOR BOARD PN 1841788-2	
R6*	Gunn bias adjustment.
R8*	Varactor bias adjustment.
R14	Modulation sensitivity adjustment.
E2	Gunn voltage test point (5V typical).
E4	Baseband input test point (2V P-P typical).
E10	Varactor bias test point (5V typical).

*Denotes factory set control – field adjustment not recommended.

Table 3-4. Receiver Baseband Unit – Internal Controls

REF DES	FUNCTION
RECEIVER DEMODULATOR BOARD PN 1841552	
C46*	Limiter return loss.
C9*,C12*,L5*,L6*,R8*,R10*	Discriminator tuning.
R19,R22	Video de-emphasis adjustment.
R20,R40,R75	Video Amplifier dc balance.
R33	Baseband level adjustment.
R69	Video level adjustment.
R52	Meter zero.
R60	Squelch threshold.
W1	Factory test jumper.
W2	Video invert jumper.
W3	Video de-emphasis select jumper (OUT = 525 line; IN = 625 line).
E10,E11	Video Low Pass Filter terminals.
F1	+ DC power fuse, 2A.
F2	– DC power fuse, 0.5A.
RECEIVER AUDIO BOARD (AUDIO #1, 2, or 3) PN 1841576	
R9	Audio level adjustment.
L5	Audio level and linearity.
C12	Subcarrier demodulation linearity adjustment.
W1,W2	Audio output impedance select jumpers (OUT = 600 ohms; IN = Low Z).
W3	Audio de-emphasis disable.
IF FILTER BOARD PN 844433	
L1*,L2*,L3*,L4*,L5*,L6*, C1*,C2*,C6*,C10*	IF filter tuning.
L8*,L10*,C17*	Equalizer tuning.
RX POWER SUPPLY BOARD PN 1841570-1	
Fuse	120 Vac nominal input, 1.0A Slo-Blo or 220 Vac nominal input, 0.5A Slo-Blo.
Mains Selector	Selects 100/120 Vac or 220/240 Vac operation.

*Denotes factory set control – field adjustment not recommended.

Table 3-5. Receiver RF Box Assembly – Internal Controls

REF DES	FUNCTION
VOLTAGE REGULATOR BOARD PN 1841788-1	
R6*	Gunn bias adjustment.
E1	Auxiliary AGC test point.
E2	Gunn voltage test point.
E5	– 12V test point.
E10	+ 12V test point.
LO TEMPERATURE CONTROL BOARD PN 1842102	
R2*	Temperature set point.
140 MHz PREAMPLIFIER BOARD PN 1841936	
C12*,L4*,L10*,L5*,L8*,L6*, L11*,L7*,C20*,C21*	IF Filter tuning.
W1	Factory test jumper.
IF AMPLIFIER BOARD PN 843901	
L1*,L2*,L3*	IF Amplifier tuning.

*Denotes factory set control – field adjustment not recommended.

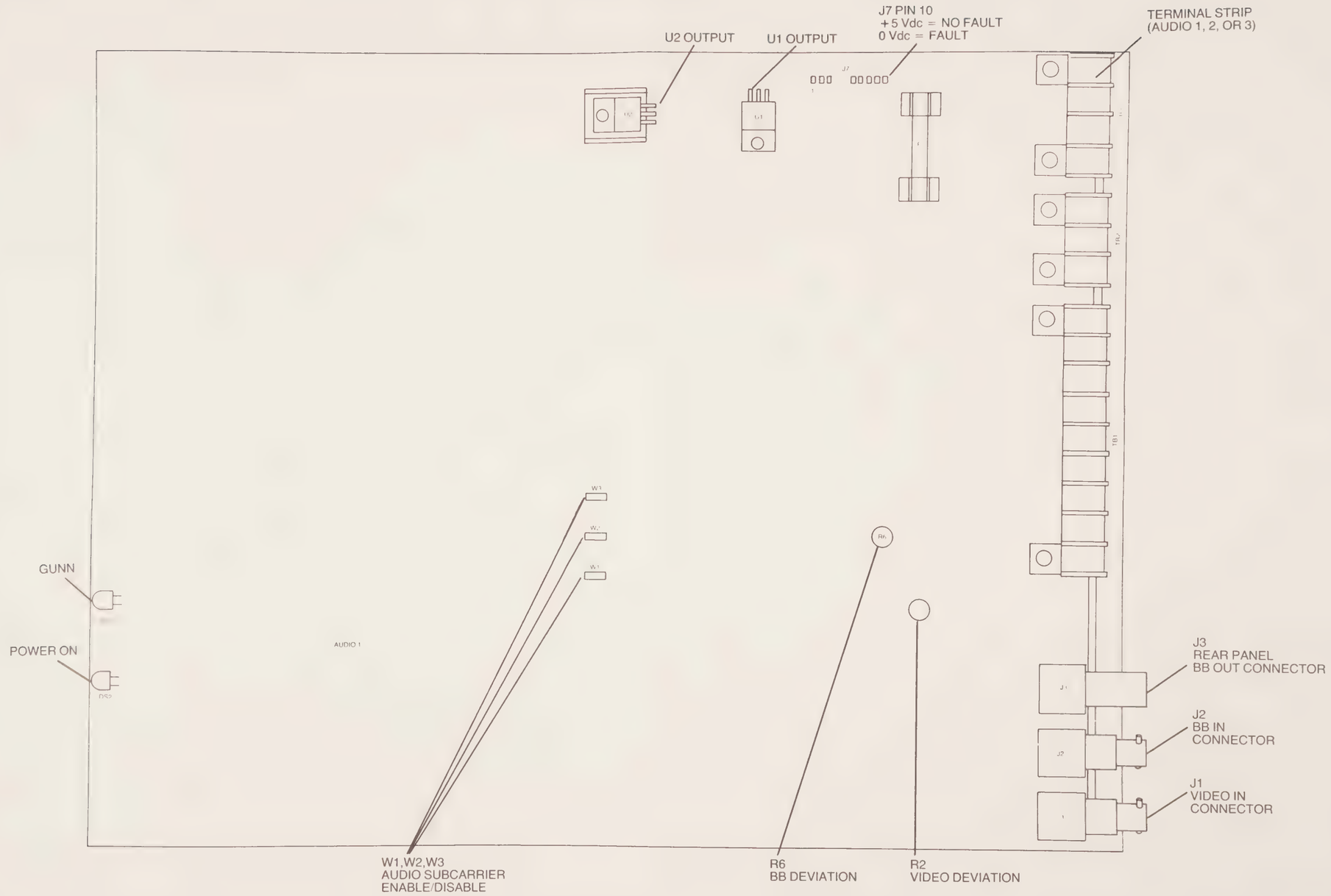


Figure 3-1. Transmitter Baseband Board Adjustment Locations

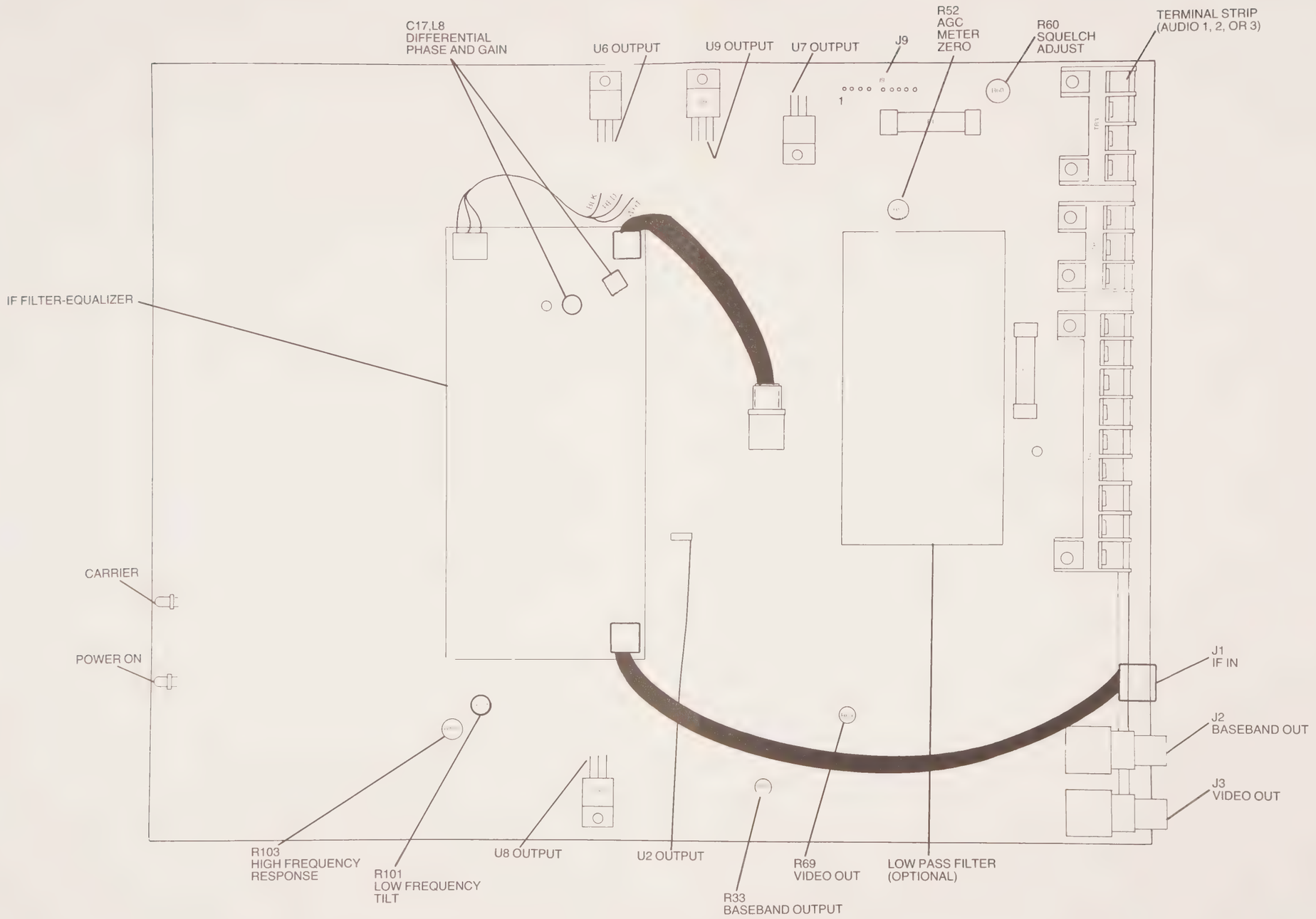


Figure 3-2. Receiver Demodulator Board Adjustment Locations

TRANSMITTER RF BOX ALIGNMENT (Figures 3-4 and 3-5)

Step 1. Connect the Transmitter RF output through a directional coupler to path loss test attenuators as shown in Figure 3-4 and connect the power interconnection cable from the Transmitter Baseband Unit to the POWER IN connector J3 (Figure 3-5).

NOTE

Do not connect the Receiver RF Box at this time.

Step 2. Open the door of the Transmitter RF Box for access to internal controls and test points.

Step 3. Using DVM, measure dc supply voltage from Transmitter Baseband Unit at J2 Pins 3 and 4 of the RFI Filter (+14 Vdc nominal).

Step 4. **Gunn diode and varactor diode bias voltages are marked on the side of the Gunn Source (Figure 3-5).** Check these voltages at connector J1 of the Transmitter Voltage Regulator board (Figure 3-5) as follows:

a. **Gunn Bias Voltage:** Connect a DVM between ground and Pin 4 of J1 of the Transmitter Voltage Regulator board. If necessary, adjust R6 on the board for the correct voltage.

b. **Varactor Bias Voltage:** Connect a DVM between ground and Pin 1 of J1 on the Transmitter Voltage Regulator board. If necessary, adjust R8 on the board for the correct voltage.

Step 5. Connect a microwave frequency counter to the directional coupler output port and allow the Gunn Source to warm up for approximately 10 minutes.

CAUTION

Be extremely careful. Do not turn adjustment screw more than ±1/2 turn.

Step 6. Measure the Transmitter frequency (Spec: within ±7 MHz of assigned frequency). If necessary, loosen the setscrew locking collar on the Gunn Source and adjust the frequency tuning setscrew for the assigned Transmitter frequency, then tighten the locking collar. It may be necessary to repeat this step several times.

Step 7. Replace the frequency counter at the directional coupler output port with a power meter and measure the RF power output level (+18 dBm ± 3 dB depending upon system configuration). Be sure to include directional coupler loss for this measurement.

RECEIVER RF BOX ALIGNMENT (Figures 3-2, 3-5, and 3-6)

Step 1. Connect the interconnection power cable from the Receiver Baseband Unit to POWER connector J3 (Figure 3-5) on the Receiver RF Box.

Step 2. Open the door of the Receiver RF Box for access to internal controls and test points.

Step 3. Using DVM, measure dc supply voltages from the Receiver Baseband Unit (Figure 3-2) at J1 of the RFI Filter board as follows:

a. At Pins 3 and 4 of J1, check for +20 Vdc ± 1.0 Vdc.

b. At Pin 5 of J1, check for −20 Vdc ± 1.0 Vdc.

Step 4. Allow the unit to warm-up for 10 minutes.

Step 5. **The Gunn diode bias voltage is marked on the side of the Gunn Oscillator (Figure 3-5).** Check this voltage at Pin 4 of J1 on the Receiver Voltage Regulator Board. If necessary, adjust R6 on the board for the correct voltage.

Step 6. Connect the Receiver RF Box to the Transmitter RF Box via the path loss test attenuators and connect a frequency counter to the IF OUT connector of the Receiver RF Box.

Step 7. Set the waveguide variable attenuator to 0 dBm attenuation (60 dB total path loss) and apply power to the Transmitter.

Step 8. The IF frequency should read 140 MHz ± 7 MHz on the counter. If not, it will be necessary to adjust the frequency of the Receiver Gunn Oscillator per the following procedure.

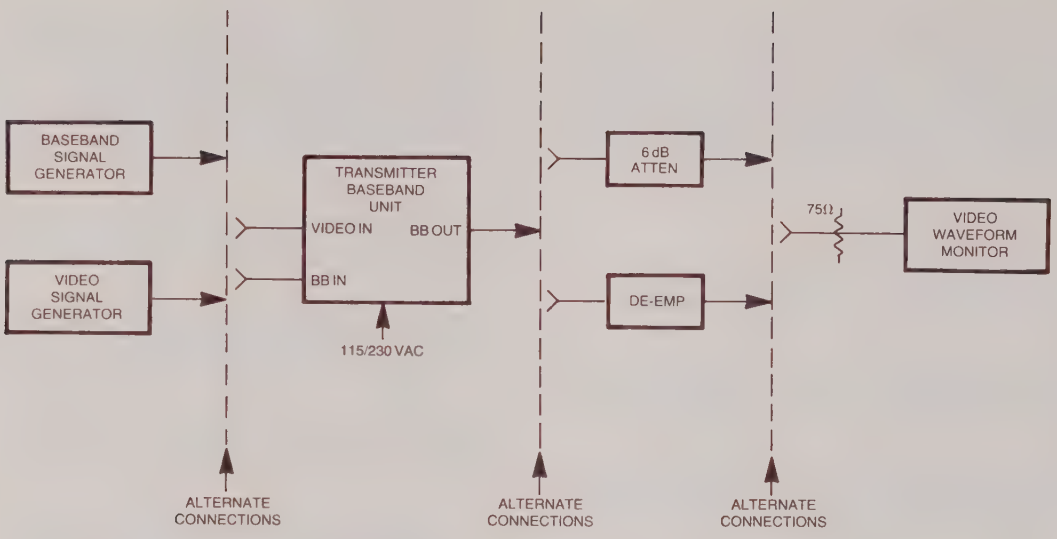


Figure 3-3. Transmitter Baseband Unit Test Configuration

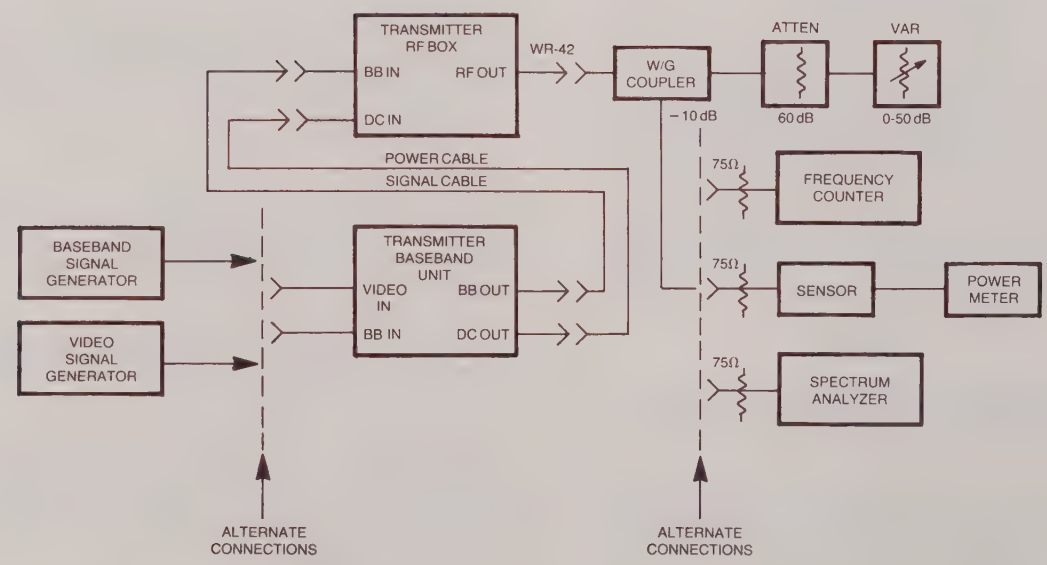
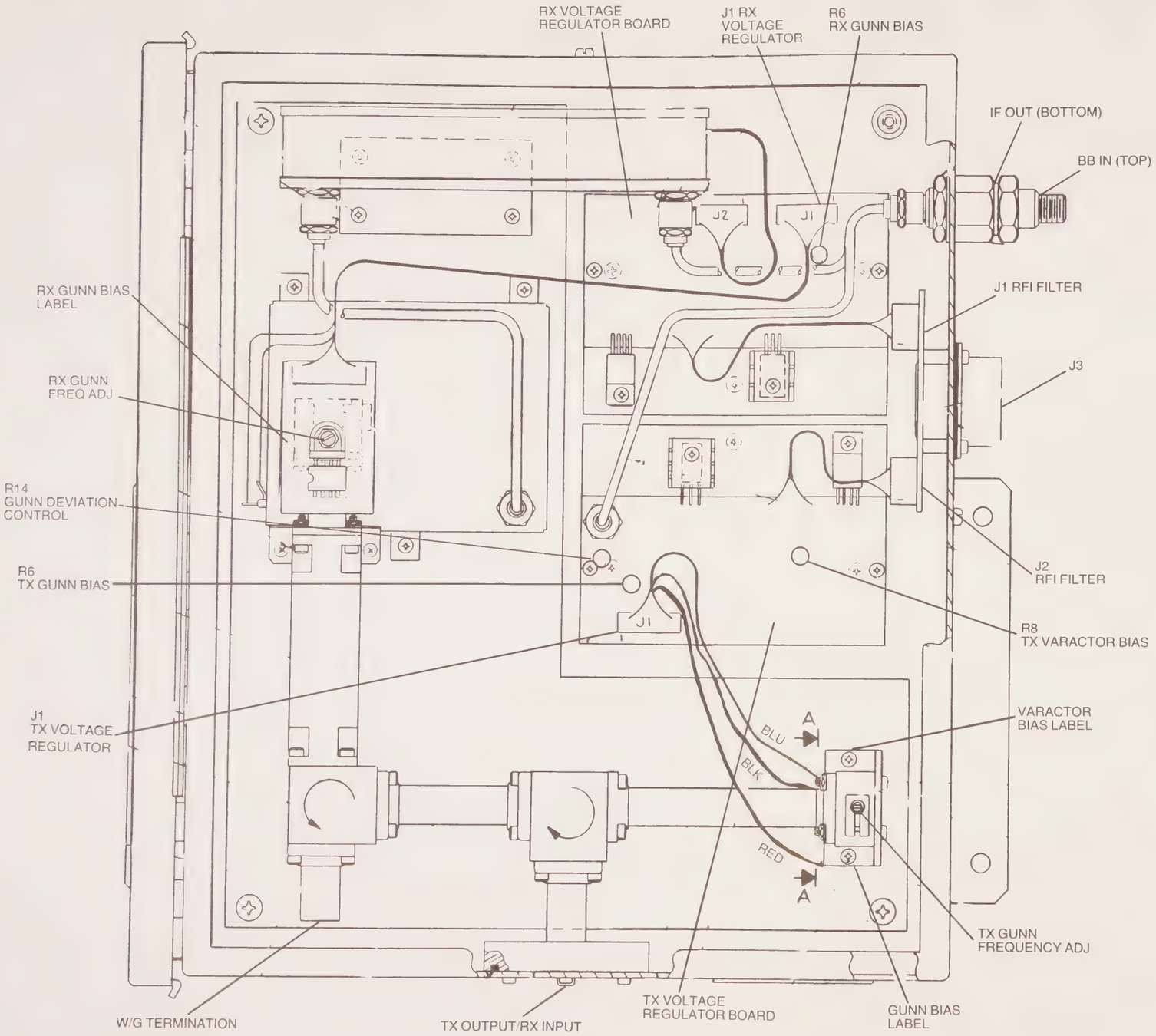


Figure 3-4. Transmitter Test Configuration



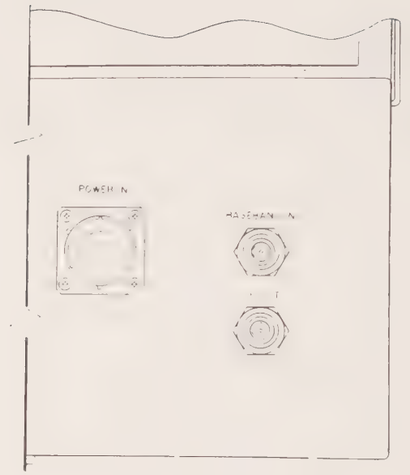


Figure 3-5. Transmitter/Receiver RF Box Assembly – Adjustment Locations

RECEIVER GUNN OSCILLATOR FREQUENCY ADJUSTMENT PROCEDURES

CAUTION

Be extremely careful. Do not turn adjustment screw more than ±1/2 turn.

One of two methods can be used to adjust the frequency of the Receiver Gunn Oscillator depending on the test equipment that is available. Method A is the preferred method which requires a high frequency counter to measure the Receiver Gunn Oscillator frequency directly. Method B uses a spectrum analyzer to view the sidebands of the 140 MHz IF signal. When Method B is used, it may be difficult to determine whether the Gunn Oscillator frequency is set 140 MHz above or 140 MHz below the carrier frequency.

Receiver Frequency Adjustment Procedure (Method A)

Step 1. If the system is duplex, disable the Transmitter Gunn Source by disconnecting J1 on the Transmitter Voltage Regulator card in the RF Assembly.

Step 2. Locate the circulator with a waveguide termination and remove the termination (secured by four screws).

Step 3. Using a waveguide-to-SMA adaptor, connect a 23 GHz frequency counter to the open circulator port to measure the frequency of the Receiver Gunn Oscillator.

Step 4. Tune the Receiver Gunn Oscillator to the desired frequency, which is labelled on the unit.

Step 5. Replace the waveguide termination on the circulator. Be sure that the waveguide openings are correctly oriented.

Step 6. If the system is duplex, restore power to the Transmitter Gunn Source by connecting J1 on the Transmitter Voltage Regulator Board (Figure 3-5).

Receiver Frequency Adjustment Procedure (Method B)

Step 1. Replace the counter with a spectrum analyzer at the IF OUT connector of the Receiver. Setup the spectrum analyzer as follows:

Frequency:	140 MHz
Input Attenuation:	10 dB
Reference Level:	0 dBm
Frequency Span:	20 MHz/div

Step 2. At this point, it must be determined if the Receiver Gunn Oscillator's LO signal is set 140 MHz above or 140 MHz below the carrier frequency. If on the high side, perform Part A; if on the low side, perform Part B. This frequency is labelled on the RF Unit.

a. Part A, High Side LO Tuning: Tune the RX Gunn Oscillator until a sideband is seen on the spectrum analyzer that decreases in frequency as the tuning screw is turned clockwise (LO frequency decreasing).

b. Part B, Low Side LO Tuning: Tune the RX Gunn Oscillator until a sideband is seen on the spectrum analyzer that increases in frequency as the tuning screw is turned clockwise (LO frequency decreasing).

Step 3. Center the sideband at 140 MHz on the spectrum analyzer. In the event that multiple sidebands are seen, select the strongest sideband (−6 dBm level at IF OUT).

Step 4. Disconnect the spectrum analyzer from the IF OUT connector and replace with the frequency counter. Adjust the RX Gunn tuning screw until the IF frequency is 140 MHz ± 7 MHz, then seal the tuning screw with "Vibratight."

TRANSMITTER RF BOX DEVIATION ADJUSTMENT (Figures 3-1, 3-4, 3-6, and 3-7)

Step 1. Disconnect the frequency counter from the Receiver IF OUT connector and replace with spectrum analyzer or field strength meter.

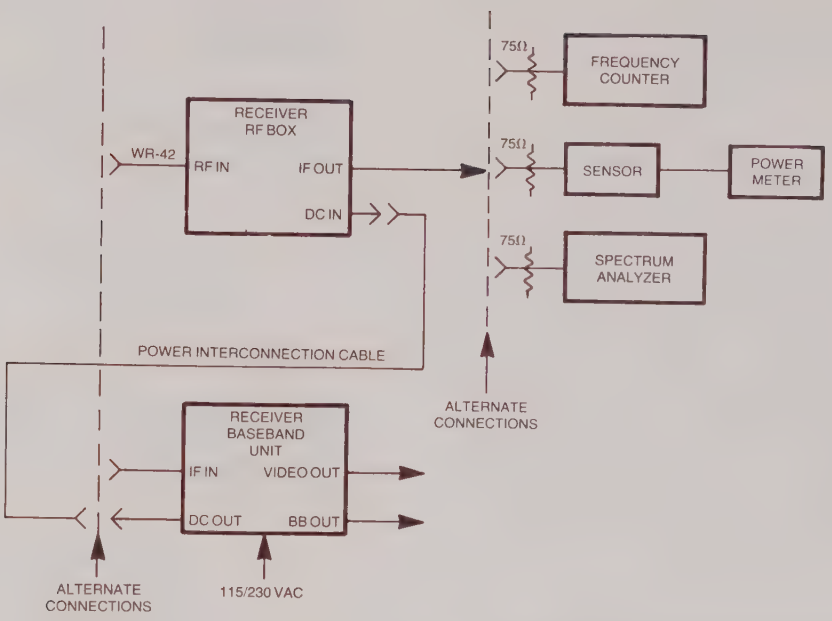


Figure 3-6. Receive

Step 2. Connect a signal generator to the BASEBAND IN on the Transmitter Baseband Unit and inject a 761 kHz signal at 1.0V P-P.

Step 3. Observe the spectrum analyzer for a carrier null with sidebands (Figure 3-7). If the carrier is not nulled, turn the deviation adjust potentiometer R6 on the Transmitter board (Figure 3-1) all the way counterclockwise. Adjust the resolution of the analyzer as necessary to distinguish the sidebands from the carrier. Center the 140 MHz carrier on the spectrum analyzer and slowly adjust R6 until the carrier goes through two nulls. The Transmitter deviation is properly set.

Step 4. Repeat Steps 2 and 3 using the video input and adjusting R2 for the 2nd carrier null.

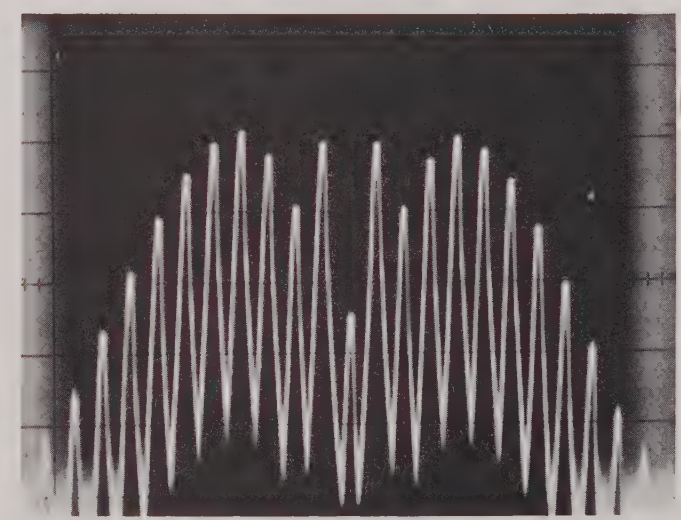


Figure 3-7. Spectrum Display for 2nd Carrier Null

RECEIVER RF BOX IF OUTPUT LEVEL (Figure 3-5)

Step 1. Connect a power meter or field strength meter to the Receiver RF Box IF OUT connector via a transit pad.

Step 2. Set the variable attenuator to 0 dB (60 dB total path loss) and check that 140 MHz IF output level is −6 dBm ± 1 dB.

Step 3. Increase the attenuation of the variable attenuator until the IF level drops by 1 dB. This should occur at a variable attenuator setting of 39 dB ± 5 dB (99 dB ± 5 dB total path loss).

Step 4. Set the variable attenuator back to 0 dBm.

RECEIVER BASEBAND UNIT ALIGNMENT (Figures 3-2 and 3-8)

Step 1. Disconnect the power meter from the Receiver RF Box IF OUT connector.

Step 2. Install the signal interconnection cable between the Receiver RF Box (IF OUT connector) and the Receiver Baseband Unit (IF IN connector).

Step 3. Check the Receiver Baseband circuit board (Figure 3-2) on-card three terminal regulators: U2 output +5.0 ± 0.3 Vdc, U6 output +12.0 ± 0.3 Vdc, U7 output −12.0 ± 0.3 Vdc, U8 output +12.0 ± 0.3 Vdc, U9 output +7.0 ± 0.2 Vdc.

Step 4. Connect the waveform monitor to the BB OUT connector of the Receiver Baseband Unit.

Step 5. Connect a video signal generator to the BB IN connector of the Transmitter Baseband Unit and apply a composite video test signal (Figure 3-12A).

Step 6. Adjust R33 on the Receiver Baseband circuit board (Figure 3-2) for 140 IRE units on the waveform monitor.

Step 7. Move the signal generator to the VIDEO IN connector of the Transmitter Baseband Unit and connect the waveform monitor to the VIDEO OUT connector of the Receiver Baseband Unit.

Step 8. Apply a composite video signal at 1V P-P and adjust R69 on the Receiver Baseband circuit (Figure 3-2) board for 140 IRE units on the waveform monitor.

Step 9. Check the Receiver squelch circuit operation at terminal strip TB2 on the rear panel of the Receiver Baseband Unit as follows:

a. Check for continuity between terminals COM and 1.

b. Increase the attenuation of the variable attenuator until you break continuity.

Step 10. Adjust AGC meter zero (R52) with no signal input (Figure 3-2).

AUDIO SYSTEM ALIGNMENT

The 23 GHz system is available with up to three audio subcarrier channels. Set up one audio channel at a time. The Transmitter and Receiver audio channels must be compatible (i.e., same subcarrier frequencies and emphasis for the corresponding audio channels).

TRANSMITTER BASEBAND UNIT AUDIO ALIGNMENT (Figures 3-1, 3-9, and 3-10)

Step 1. On the Transmitter Baseband circuit board (Figure 3-1), remove jumper plugs W1, W2, and W3 to disable all audio channels.

Step 2. Using test setup shown in Figure 3-9, apply a multiburst test signal at 1V P-P to BB IN connector J2 (Figure 3-1) and observe 140 IRE units on the waveform monitor.

Step 3. Remove video modulation and install jumper plug (W1 for Audio 1, W2 for Audio 2, or W3 for Audio 3).

Step 4. Adjust R25 (Figure 3-10) on Audio Modulator Board for subcarrier level of 15 IRE units (approximately 100 mV P-P).

Step 5. Using audio signal generator, apply a 0 dBm, 1 kHz test signal at appropriate terminal strip (Audio 1, 2, or 3) on rear panel. Adjust R5 on Audio Modulator board (Figure 3-10) for 75 kHz deviation on deviation meter.

NOTE

Repeat Steps 3, 4, and 5 for each installed Audio Board.

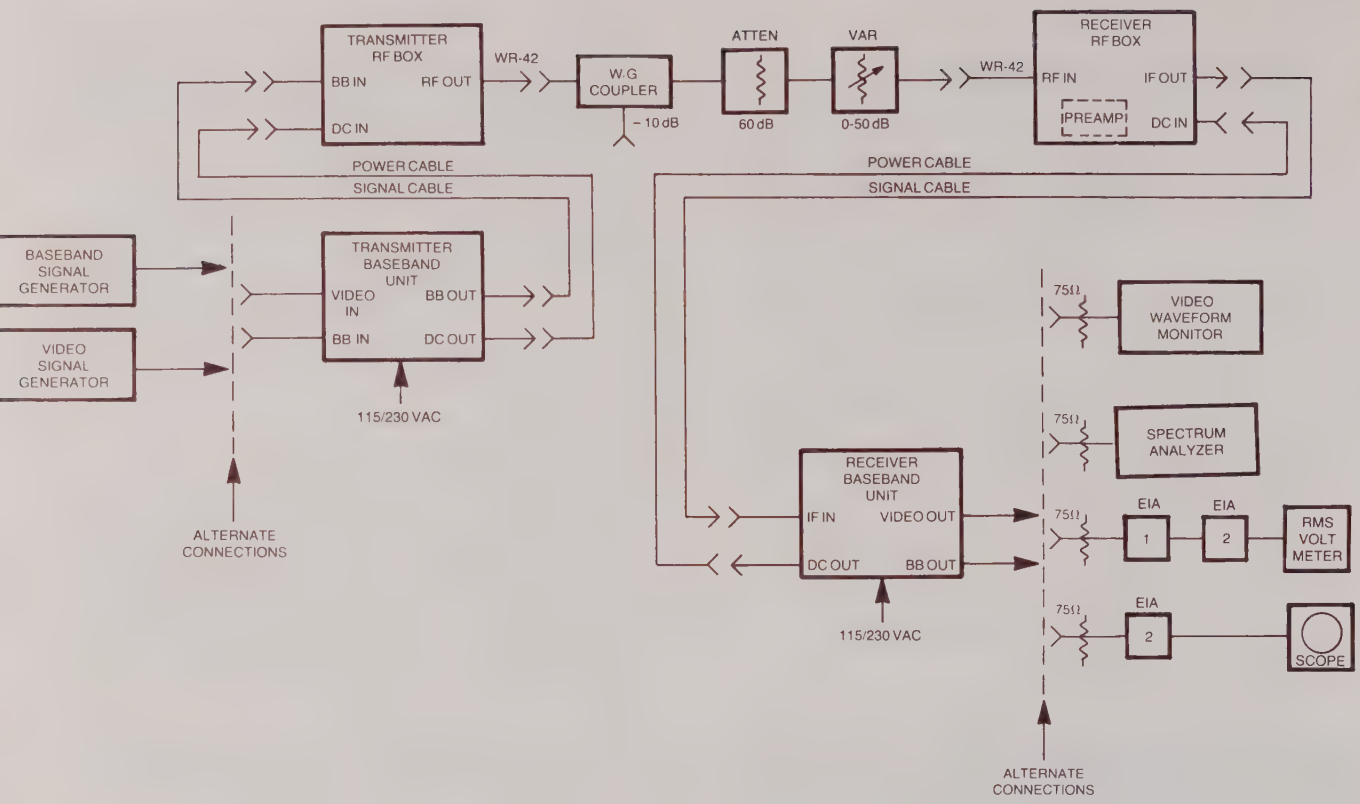


Figure 3-8. System Test Configuration

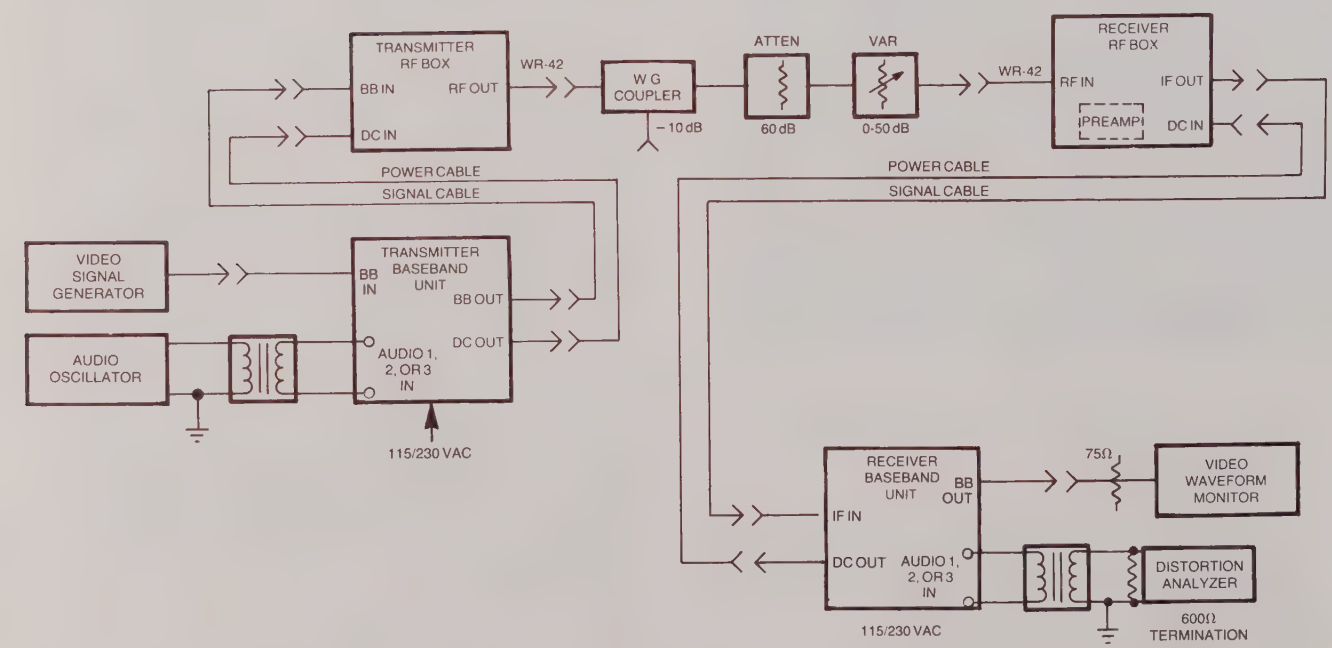


Figure 3-9. Receiver Baseband Unit System Audio Test Configuration

RECEIVER BASEBAND UNIT AUDIO ALIGNMENT (Figures 3-1, 3-2, 3-9, and 3-11)

Step 1. At the Transmitter Baseband Unit, remove jumper plugs W1, W2, and W3 on the Transmitter Baseband circuit board (Figure 3-1) to disable all audio channels.

Step 2. Using test set up shown in Figure 3-9, apply a multiburst test signal at 1V P-P to the BB IN connector on the Transmitter Baseband Unit and observe 140 IRE units on the waveform monitor at the BB OUT connector of the Receiver Baseband Unit.

Step 3. Remove video modulation and install appropriate jumper on the Transmitter Baseband circuit board (Figure 3-1) for audio channel under test (W1 for Audio 1, W2 for Audio 2, and W3 for Audio 3).

Step 4. Connect an audio distoriton analyzer with appropriate load to terminal strip (AUDIO 1, 2, or 3) on the Receiver Baseband Unit (Figure 3-2).

Step 5. Using audio signal generator, apply a 0 dBm, 1 kHz test signal at the appropriate terminal strip (AUDIO 1, 2, or 3) on the Transmitter Baseband Unit (Figure 3-1). If necessary, adjust R9 on the Receiver Audio Demodulator board (Figure 3-11) for an audio output level of +9 dBm into a balanced 600 ohm load.

NOTE

Repeat Steps 3, 4, and 5 for each installed Audio Demodulator board.

Step 6. Refer to audio performance characteristics in Section 1 and check audio distortion, audio frequency response (at −20 dB below normal input level), and audio signal-to-noise (at normal input level).

a. Method of Measurement – The audio channel shall be operated at standard input and output test tone (TT) level and the measuring equipment shall terminate the circuit in a standard load impedance. A test tone of 1000 Hz having less than 0.1% rms harmonic distortion shall be applied to the audio input of the system at 100% modulation at peak deviation.

b. Since pre-emphasis and de-emphasis are used, the input level of the system shall be adjusted at each measurement so as not to exceed 75 kHz peak deviation. This will require dropping the input audio level with increasing frefrequency as the pre-emphasis curve rises. The input and output level conrols of the radios shall not be readjusted during this procedure.

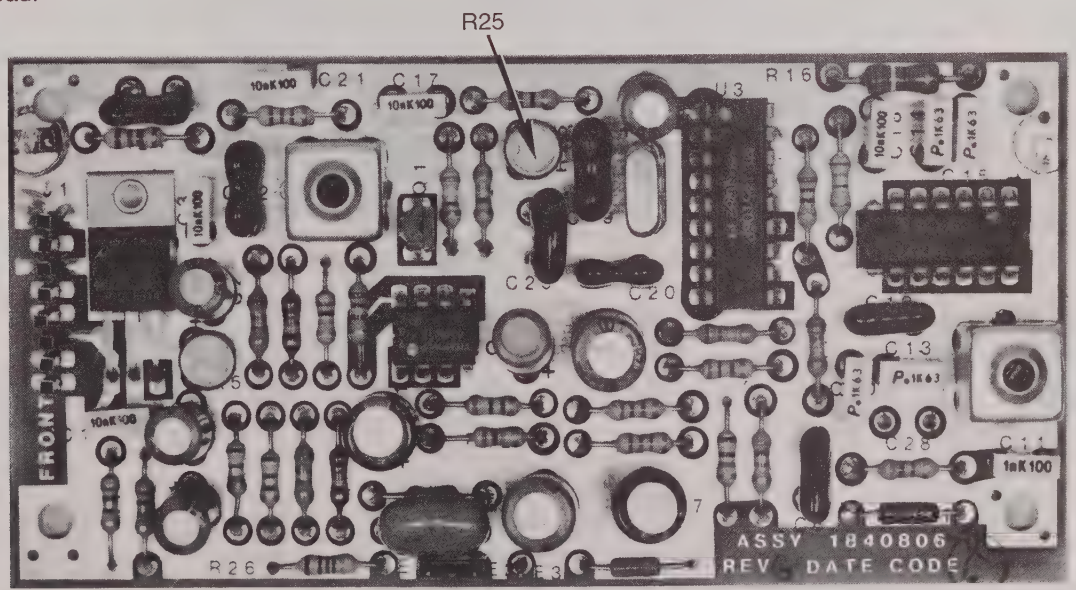


Figure 3-10. Transmitter Audio Subcarrier Modulator Adjustment Locations

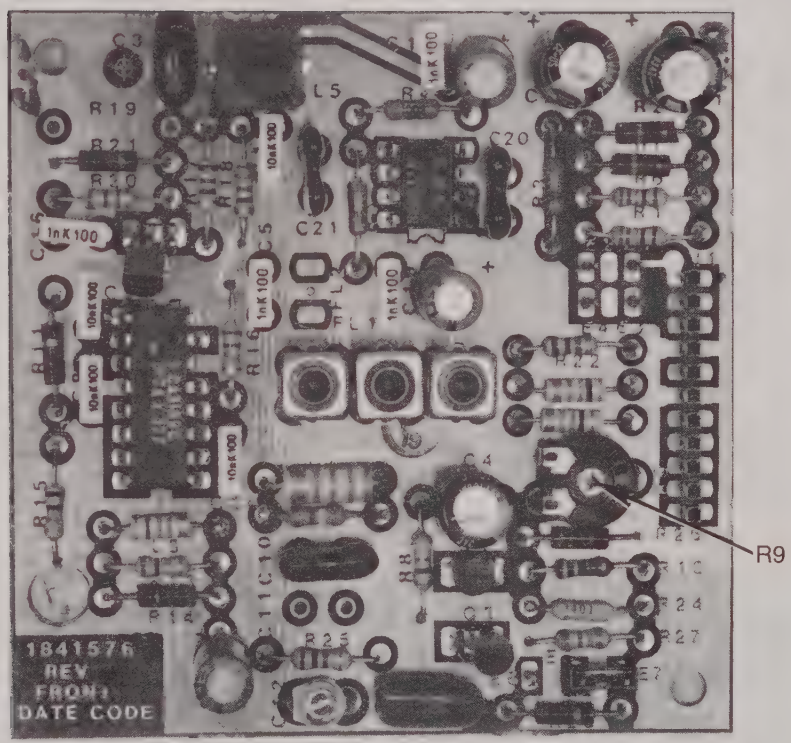


Figure 3-11. Receiver Audio Subcarrier Demodulator Adjustment Locations

VIDEO SYSTEM PERFORMANCE TESTS

These tests are provided so that video system performance parameters can be properly met, and to insure compliance with operational requirements. Video waveforms are shown in Figure 3-12. The following tests should be performed.

- Video Frequency Response
- Video Differential Gain
- Video Differential Phase
- Video Signal-to-Noise
- Video Signal-to-Hum
- Chrominance-Luminance Gain Inequality
- Chrominance-Luminance Delay Inequality
- Field Squarewave Tilt
- 2T Pulse 'K' Factor

VIDEO FREQUENCY RESPONSE

Step 1. Connect the baseband signal generator to the Transmitter video input.

Step 2. Configure the baseband signal generator for 200 kHz at 1V P-P.

Step 3. Connect the terminated rms voltmeter to the Receiver output. Configure rms voltmeter for upper third scale reading and record reading in the maintenance log.

Step 4. Holding the input signal level constant, take readings at 10, 100, 500 kHz and 1, 2, 3, 3.58, 4.0, and 4.3 MHz. Record difference in decibels between each reading and the reference reading at 200 kHz.

Step 5. Adjust R101 and R103 on the Receiver Baseband Board (Figure 3-2).

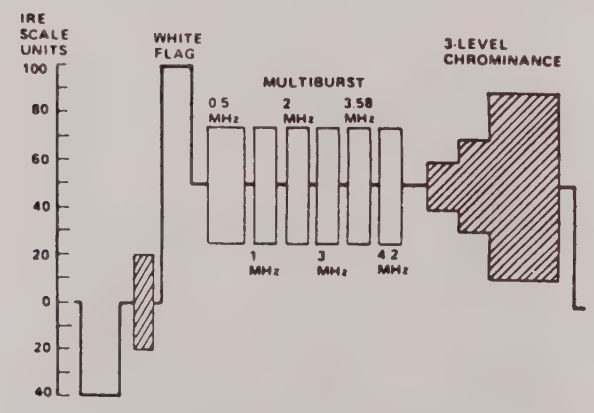
Step 6. repeat steps 1 through 4 using baseband input and baseband output.

Video Frequency Response (Alternate Method No. 1)

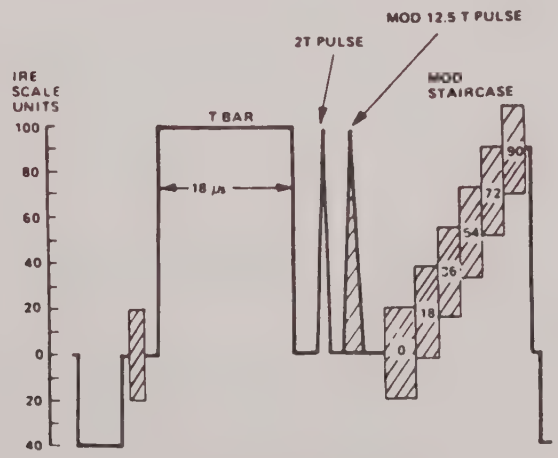
A terminated video waveform monitor with the horizontal sweep on two-thirds position, may be used in place of the rms voltmeter. Record frequency response as percent difference referred to 100% at 200 kHz reference and convert to decibels.

Video Frequency Response (Alternate Method No. 2)

A video sweep from 50 kHz to 5 MHz may be connected at 0.7V peak-to-peak to the Transmitter video input. View the recovered signal on a terminated video waveform monitor. Record frequency response as percent difference referred to 100% at 200 kHz reference and convert to dB.



A. Composite Test Signal



B. Combination Test Signal

Figure 3-12. Video Test Waveforms

VIDEO DIFFERENTIAL GAIN

Step 1. Configure the video signal generator for stairstep signal with 3.58 MHz subcarrier at 50% average picture level (APL). Connect the video signal generator to the Transmitter video input.

Step 2. Connect a terminated video vectorscope to the Receiver video output. Measure and record differential gain. Repeat for 10% and 90% APL.

Video Differential Gain (Alternate Method No. 1)

A terminated video waveform monitor, with the vertical input selector at high pass position, may be used to measure differential gain at 10, 50, and 90% APL.

VIDEO DIFFERENTIAL PHASE

Step 1. Configure the video signal generator for stairstep signal with 3.58 MHz subcarrier at 50% APL. Connect the signal generator to the Transmitter video input.

Step 2. Connect a terminated video vectorscope to the Receiver output. Measure and record differential phase. Repeat for 10 and 90% APL.

Step 3. Adjust L8 or C17 on the IF Filter-Equalizer (Figure 3-2).

VIDEO SIGNAL-TO-NOISE (S/N)

Step 1. Connect EIA weighting network plus the Low Pass Filter and the High Pass Filter between the Receiver video output and a 75 ohm termination.

Step 2. Connect an rms voltmeter across the termination.

Step 3. Remove the Transmitter video input signal and terminate the Transmitter video input signal.

Step 4. Read the residual noise voltage on the rms voltmeter and convert this reading to signal-to-noise (S/N) in decibels by reference in Figure 3-13. Filter loss has been included in the chart preparation and, therefore, if 1V peak-to-peak unity gain exists in the system, the solid-line conversion is the system signal-to-noise (S/N) ratio. Record this value in decibels in the maintenance log.

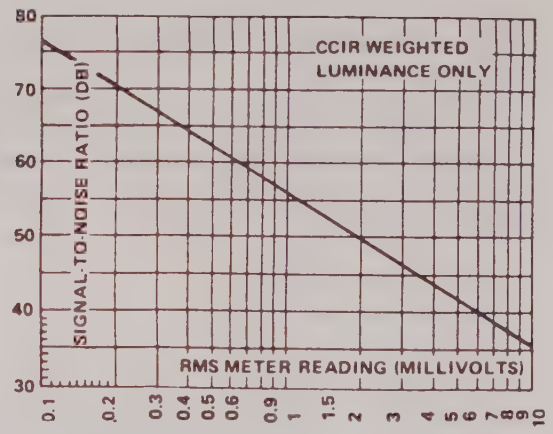


Figure 3-13. Signal-to-Noise (S/N) Conversion Chart

VIDEO SIGNAL-TO-HUM (S/H)

Step 1. Terminate the Receiver in 75 ohms.

Step 2. Connect EIA Low Pass Filter across the termination and connect the filter output to the oscilloscope.

Step 3. Remove the Transmitter video input signal and terminate the Transmitter video input terminal.

Step 4. Read the residual hum voltage on the oscilloscope in peak-to-peak amplitude and convert this reading in millivolts (mV) to signal-to-hum in decibels by reference to Figure 3-14. If 1V P-P unity gain exists in the system, the solid line conversion is the system signal-to-hum ratio. Record this value in decibels in the maintenance log.

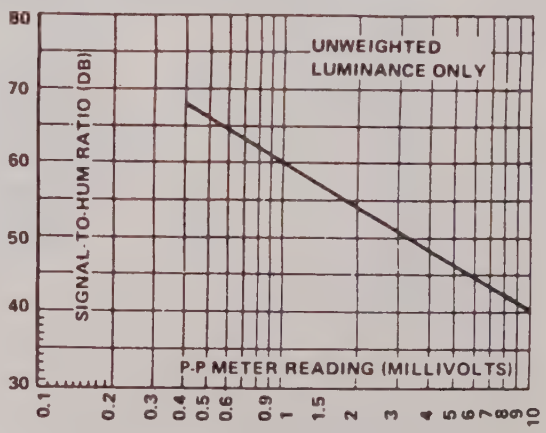


Figure 3-14. Signal-to-Hum (S/H) Conversion Chart

CHROMINANCE-LUMINANCE GAIN INEQUALITY

Step 1. Configure the video waveform generator for a sine^2 pulse and bar test signal. Connect the waveform generator to the test Transmitter video input connector.

Step 2. Connect a terminated video waveform monitor to the Receiver video output.

Step 3. Adjust the waveform monitor for a linebar amplitude of 100 IRE units.

Step 4. Measure the amplitude of the sine^2 pulse and record the difference from the line bar amplitude in IRE units.

CHROMINANCE-LUMINANCE DELAY INEQUALITY

Step 1. Configure the video waveform generator for a sine^2 pulse and bar test signal. Connect the waveform generator to the test Transmitter video input connector.

Step 2. Connect a terminated video waveform monitor to the Receiver video output.

Step 3. Adjust the waveform monitor for a sine^2 pulse amplitude of 100 IRE units.

Step 4. Expand the time scale and amplitude scale of the waveform monitor and observe the peak-to-peak envelope ripple at the base of the sine^2 pulse.

Step 5. Calculate the delay as follows:

Delay (ns) = 10D (for 12.5T modulated sine^2 pulse with half amplitude duration of 1.57 μs).

WHERE:
D is the peak-to-peak amplitude of baseline deviation in IRE units with gain errors normalized.

FIELD SQUAREWAVE TILT

Step 1. Configure the waveform generator for a field squarewave test signal. Connect the waveform generator to the test Transmitter video input.

Step 2. Connect a terminated video waveform monitor to the Receiver video output.

Step 3. Adjust the amplitude of the center of the bar for 100 IRE units on the waveform monitor display.

Step 4. Measure the peak-to-peak change in amplitude of the bar top in IRE units.

Step 5. Adust R101.

2T PULSE 'K' FACTOR

Step 1. Configure the video waveform generator for a window test signal. Connect the waveform generator to the test Transmitter video input.

Step 2. Connect a terminated video waveform monitor to the Receiver video output.

Step 3. Adjust the waveform monitor for a line bar amplitude of 100 IRE units.

Step 4. Measure the variation of the 2T pulse from the line bar in IRE units.

SECTION 4

MAINTENANCE AND TROUBLESHOOTING

GENERAL

Maintenance of the system includes both preventive and corrective maintenance.

Preventive maintenance consists of the semi-annual and annual procedures adopted to prevent minor problems from developing into major breakdowns. Initiate and carry out a preventive maintenance schedule which checks system operation and exercises all control functions. This practice helps to avoid the occurrence of equipment malfunction and insures insures optimum system performance.

Corrective maintenance is indicated when a fault or impairment to normal operation is noted. Troubleshooting procedures will isolate the fault to a subsystem or unit. Repair, replacement or adjustment of the subsystem or unit will correct the fault to restore normal operation.

MAINTENANCE LOG. Record measurements and corrective action taken in a maintenance log as reference information for use in future alignment, maintenance and troubleshooting.

NOTE

Also, a log entry must be made any time the Transmitter is removed from service, or restored to service.

PREVENTIVE MAINTENANCE

Preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent occurrence of trouble, to reduce downtime, and to maintain the equipment in serviceable condition. Preventive maintenance procedures are normally performed semi-annually and annually; specific procedures are provided herein. The semi-annual checks should also be performed when the equipment is initially installed and when the equipment is reinstalled after removal for any reason.

PERIODIC MAINTENANCE. On a semi-annual basis, station personnel should record, in a maintenance log, the normal measurements of equipment operating parameters so that equipment performance overtime may be monitored. A comparison of the measurements entered in the maintenance log is a means of determining any long-period changes in equipment performance. M/A-COM does not recommend periodic adjustment of the equipment without cause. If operating policy requires operational checks be made on a periodic basis, these checks should be limited to those which do not unnecessarily alter equipment adjustments. Adjustments, as delineated in Section 3 of this manual, should be made only in the event that the equipment fails to met performance specifications. The periodic maintenance log should be examined to determine whether any failure that occurs is gradual or catastrophic. If the failure is of an abrupt nature, refer to the troubleshooting procedures before readjusting the equipment.

SEMI-ANNUAL CHECKS. If the equipment is in continuous use, perform only those steps that do not interfere with the equipment operation.

1. EXTERIOR SURFACES. Clean outside of case and front panel.

2. CABLE CONNECTIONS. Check all cable connections and finger-tighten if necessary.

3. MEASUREMENTS. Perform system operating parameters and record the readings in the maintenance log. Any variance from previous readings should be investigated.

ANNUAL CHECKS. Perform the following checks on an annual basis. If the equipment is in continuous use, perform only those steps that do not interfere with equipment operation.

1. HARDWARE. Tighten loose screws and replace missing hardware as required.

2. INDICATOR LAMPS. Check indicator lamp operation and replace if defective.

3. CABLES. Inspect for wear and fraying, and repair if necessary. Replace cable assemblies in which wiring insulation or connectors are damaged.

4. PAINTED SURFACES. Clean, and if necessary, paint bare metal spots, blistered, pitted or flaking areas.

5. ANTENNAS AND TOWERS. Check mounting hardware. Tighten or replace as necessary.

CORRECTIVE MAINTENANCE

Effective corrective maintenance can best be accomplished when the operating principles of both the overall system and the individual units comprising the system are fully understood. Therefore, the technical descriptions provided should be read thoroughly before attempting any corrective maintenance.

NOTE

Troubleshooting of this system should be undertaken only by experienced personnel, technically qualified personnel equipped with proper test equipment.

TROUBLESHOOTING PROCEDURES

Refer to troubleshooting procedures appended to this section of the manual.

M/A-COM MA-23CC Troubleshooting Procedure

This procedure assumes that the antennas are aligned correctly and that polarization has been set and line-of-site exists between the end sites.

Apparatus

Digital Multimeter
Frequency Counter (23 GHz or 200 MHz)
Scope (10 MHz)
Spectrum Analyzer (140 MHz)
Field Strength Meter

Procedure

Step 1. Look up the indicated alarm or failure mode in Column A.
Step 2. When alarm or failure is located, move across to Column B for possible fault cause.
Step 3. Select a cause and move to Column C and locate evaluation parameter.
Step 4. If evaluation parameter is incorrect, move to Column D for corrective action.
Step 5. If evaluation parameter is correct, move to Column E for next step or cause.

A	B	C	D	E
FAILURE MODE/ALARM	POSSIBLE CAUSE	EVALUATION	CORRECTIVE ACTION	NEXT STEP
Scan Column A for failure mode or alarm. When failure located, go to Column B and scan possible causes of that failure mode or alarm.	Scan Column B for possible cause of the failure mode or alarm and then proceed to Column C and perform the measurement or evaluation noted.	Perform measurement or evaluation. If parameter noted in Column C is incorrect, go to Column D for corrective action. If parameter noted in Column C is correct, go to Column E for next step or possible cause.	If parameter noted in Column C is incorrect, perform the noted action.	If parameter noted in Column C is correct, see next step or possible cause.

A	B	C	D	E
FAILURE MODE/ALARM	**POSSIBLE CAUSE**	**EVALUATION**	**CORRECTIVE ACTION**	**NEXT STEP**
1. No TX power LED.	a. TX Power Supply.	a. Confirm +14 on TB-3 and 4 with load applied.	1) Check ac power. 2) Check external fuse. 3) Check Power Supply.	a. Replace defective power LED.
2. No TX Gunn current LED.	a. Confirm presence of the TX power LED. If incorrect, see No TX power LED fault procedure.*			
	b. Defective interface cable.	b. Confirm +14 on TB-3 and 4 with load applied.	1) Check internal fuse. 2) Check power cable wiring. 3) Check cable connectors.	b. See defective TX Regulator.
	c. Defective TX Regulator.	c. Measure Gunn current (920 mA) TB3-3 and 4.	c. Check Gunn Regulator output voltage (5.5V).	c. See defective TX Gunn.
	d. Defective TX Gunn.	d. Measure TX frequency (±7 MHz) (+17 dBm).	d. Replace TX Gunn.	d. Check LED and meter.
3. No RX power LED.	a. Receiver Power Supply.	a. Confirm +20V on TB3-2 and 3, and −18V on TB3-4.	1) Check ac power. 2) Check external fuse. 3) Check internal fuses.	a .Replace defective power LED.
4. No carrier LED or no AGC indication or low AGC indication.	a. Confirm presence of RX power LED. If incorrect, see no RX power LED fault procedure.*			
	b. If AGC is present, check LED.*			
	c. Confirm presence of TX Gunn current. If incorrect, see no TX Gunn current fault procedure.*			
	d. Defective dc power cable or connector.	d. Confirm +20V on TB3-2 and 3, and −18V on TB3-4.	1) Check external fuses. 2) Check cable connectors. 3) Check cable wiring.	d. See defective IF signal cable.
	e. Defective IF cable or connector.	e. Measure AGC voltage on IF cable center conductor (2.5 to 7V).	e. Check IF cable and connectors. If correct, see defective Gunn Regulator.	e. See incorrect squelch setting.
	f. Incorrect squelch setting.	f. Confirm squelch threshold.	f. Adjust R60 to set squelch threshold at −76 dBm (37 dB signal-to-noise).	f. Replace RX Controller.
	g. Defective Regulator.	g. Measure Gunn current TB3-2 and TB3-3 on RX Control Unit (320 mA).	g. Measure regulator outputs (located in RF Unit). If incorrect, replace Regulator. J1 Pins 4, 5, 7 J2 Pins 3, 4 P4 = +5V P5 = +12V P7 = +18V P3 = +12V P4 = −12V	g. See defective RX Gunn.
	h. Defective RX Gunn.	h. Measure IF frequency (140 MHz ± 7 MHz).	1) Realign RX Gunn IF frequency if within 40 MHz and check for 3 to 6V on heater element. Adjust R2 if necessary for correct level. Element should be 60°. Make sure that the Gunn frequency is not reacting to temperature before adjusting. See RX Gunn alignment procedure. 2) If no IF is present, check RX Gunn frequency. If incorrect, replace Gunn/Mixer-Preamp.	h. See defective Mixer-Preamp.

*Indicates see noted procedure first.

A	B	C	D	E
FAILURE MODE/ALARM	**POSSIBLE CAUSE**	**EVALUATION**	**CORRECTIVE ACTION**	**NEXT STEP**
	i. Defective Mixer-Preamp.	i. Measure output of Mixer (20 dB greater than RCL RX carrier level into RX).	i. Replace Mixer-Preamp.	i. See Defective IF Amp.
	j. Defective IF Amp.	j. Measure output of IF Amp (−6 dBm) (2.5 to 9V AGC).	j. Check interconnect cables and connectors. If good, replace IF Amp.	j. See defective TX Gunn.
	k. Defective TX Gunn.	k. Measure TX frequency (±7 MHz).	k. See TX Gunn alignment procedure. If incorrect, replace Gunn.	k. Replace IF Amp.
5. No video.	a. Confirm presence of RX AGC. If absent, see no AGC fault.*			
	b. Defective TX Controller.	1) Measure video input (1V P-P) J1.	1) Check video feed.	1) Measure BB output.
		2) Measure BB output (2V P-P) pre-emphasis 525, J2 with a 1V test tone applied.	2) Adjust R6. If incorrect, replace TX Controller.	2) Check BB output cable and connectors.
	c. Defective TX Gunn.	1) Confirm modulation on TX Gunn varactor and bias (voltage level noted on Gunn).	1) Recheck steps and all internal cables and connections.	1) Confirm modulation on RX IF cable.
		2) Confirm modulation on RX IF cable.	2) Replace TX Gunn.	2) See defective RX Controller.
	d. Defective RX Controller.	d. Confirm that Low Pass Filter is installed (E10-E11).	d. Install Low Pass Filter.	d. Check Receiver squelch threshold.
	e. Incorrect RX squelch setting.	e. Check squelch threshold.	e. Adjust R60 to set threshold at −76 dBm (37 dBm signal-to-noise).	e. See misaligned BB output.
	f. Misaligned BB output.	f. Check BB output of RX Controller (1V P-P) with a 1V P-P level applied to the TX video input.	f. Adjust R33 on RX video card for 1V P-P.	f. See misaligned video output.
	g. Misaligned video output.	g. Check video output of RX Controller (1V P-P) with a 1V P-P level applied to the TX video input.	g. Adjust R69 on RX video card for 1V P-P.	g. Replace RX Controller.
6. Intermittent video or noisy video or low video level.	a. Defective BB cable or power cable.	a. Check TX and RX video interconnect cables and connectors.	a. Replace or repair.	a. See misaligned RX squelch adjustment.
	b. Misaligned RX squelch adjustment.	b. Check RX squelch threshold.	b. Adjust R60 to set squelch threshold at −76 dBm (37 dBm signal-to-noise).	b. See misaligned TX Controller.
	c. Misaligned TX Controller.	c. Measure BB output (2V P-P) with a 1V test tone applied to the TX video input (J1).	c. Adjust R6 for correct level.	c. See misaligned RX Controller.
	d. Misaligned RX Controller.	d. Measure video output (1V P-P) with a 1V test tone applied to the TX video input (J1).	d. Adjust R69 for 1V P-P output.	d. See misaligned BB output.
	e. Misaligned BB output.	e. Measure BB output (1V P-P) with a 1V test tone applied to the TX video input (J1).	e. Adjust R33 for 1V P-P output.	e. See hum.

Indicates see noted procedure first.

A	B	C	D	E
FAILURE MODE/ALARM	**POSSIBLE CAUSE**	**EVALUATION**	**CORRECTIVE ACTION**	**NEXT STEP**
	f. Hum.	f. Check ground potential between the indoor and outdoor units.	f. Install a ground wire between the indoor and outdoor units or install a hum stop filter.	f. Check station ground and for ground loops.
	g. Poor station ground.	g. Check for ground loops and confirm equipment grounding to rack.	g. Ground and bond all equipment to the equipment rack and common bus.	g. See unregulated ac input.
	h. Unregulated ac input.	h. Check ac input for level and noise.	h. Insert an isolation transformer or consider a UPS.	h. *
	i. See no video output.*			
	j. See no AGC.*			
	k. Confirm line-of-site, and path alignment.			
7. Incorrect differential phase and gain.	a. Misaligned IF Filter.	a. Confirm all video jumpers and cables for correct grounding and VSWR.	a. Repair or replace.	a. Adjust L7 and L8 on RX IF Filter.
8. High or low video frequency response.	a. Misaligned video circuit.	a. Confirm all video jumpers and cables for correct grounding and VSWR.	a. Repair or replace.	a. Response: adjust C13 and C15. De-emphasis: adjust R22 and R17. Cable equalization: adjust R103 and R101.
9. Inverted video.	a. Incorrect operating frequency.	a. Measure TX frequency. Check FCC license.	a. Contact M/A-COM.	a. Confirm RX RF frequency.
	b. Incorrect location of video jumper.	b. Confirm location of W2 located within RX Controller. See maintenance manual.	b. See incorrect RX frequency.	
	c. Incorrect LO setting.	c. Measure RX frequency and confirm channel frequency label.	c. If channel frequency noted on label is correct, see RX Gunn alignment procedure.	c. Contact M/A-COM if channel frequency label is incorrect.
10. No audio.	a. Confirm presence of AGC. If absent, see no AGC fault.*			
	b. Confirm video presence. If absent, see no video output fault.*			
	c. No internal audio.	c. Open TX and RX Controllers and locate audio card.	c. Contact seller.	c. Audio jumpers in wrong location.
	d. Audio jumpers incorrect location.	d. See maintenance manual.	d. Relocate or add.	d. Confirm audio input level.
	e. Defective TX Controller.	1) Check audio input level (0 dBm).	1) Restore proper level.	1) Check subcarrier level at BB output, J2.
		2) Check output level (200 mV P-P) on BB output, J2 per audio channel.	2) Adjust R25. If incorrect, replace audio modulator.	2) See defective RX Controller.
	f. Defective RX Controller.	f. Measure RX audio output (+9 dBm) with a 0 dBm test tone at 1 kHz applied to the TX modulator.	f. If low, adjust R9. If no output, replace audio demodulator.	f. Check external cables.
11. Noisy audio or intermittent audio.	a. See no audio output fault.*			
	b. See no video/intermittent video output fault.*			

*Indicates see noted procedure first.

A	B	C	D	E
FAILURE MODE/ALARM	**POSSIBLE CAUSE**	**EVALUATION**	**CORRECTIVE ACTION**	**NEXT STEP**
	c. TX off frequency.	c. Measure TX frequency (±7 MHz).	c. See TX Gunn alignment procedure.	c. RX Gunn off frequency.
	d. RX off frequency.	d. Measure IF frequency (140 MHz ± 7 MHz).	d. See RX Gunn alignment procedure.	d. Check all cables and connectors.
12. Audio buzz or audio distortion during high video peaks.	a. Incorrect video input level.	a. Confirm 1V P-P input to TX.	a. Reduce level to 1V.	a. See incorrect TX deviation.
	b. Incorrect TX deviation.	b. Confirm BB output (2V P-P) with 1V test tone applied to TX video input.	b. Reduce BB output to 2V, R6.	b. See high frequency noise.
	c. High frequency noise.	c. Insert a 5.0 MHz Low Pass Filter in the TX video input line to confirm feed.	c. Insert a 5.0 MHz Low Pass Filter.	c. See incorrect subcarrier level.
	d. Incorrect subcarrier	d. Check audio modulator output level (200 mV per channel) at BB output of TX with a 0 dBm test tone at 1 kHz applied to TX audio input.	d. Adjust R25 for 200 mV P-P at J2 of TX.	d. See noisy or intermittent audio fault.
13. Audio distortion during peak audio periods.	a. Incorrect audio input level.	a. Confirm 0 to −6 dBm input.	a. Reduce audio level to 0 dBm.	a. Misaligned audio deviation.
	b. Misaligned audio deviation.	b. Adjust audio deviation for 75 kHz (1 kHz at 0 dBm).		
14. Subcarrier interferes with the remote video monitor.	a. Feedback.	a. Insert a 5.0 MHz Low Pass Filter at video input of TX Controller or output of RX Controller.		

The following table provides the standard and typical levels found within the MA-23CC radio. Also listed is the location or adjustment for each parameter.

PARAMETER	LEVEL	REMARKS
TRANSMITTER CONTROLLER		
Video Input Level	1V P-P	75Ω
Low Pass Filter Bypass		W5
BB Output	2V P-P	R6,
Pre-Emphasis	525	R26 and R27
Select Jumper	525 or 625	W7
Audio Input	0 dBm (600 ohm)	For 75 kHz deviation, factory pre-set w/1 kHz test tone.
Subcarrier #1 Disable	E7-8	W1 Control Board
Subcarrier #2 Disable	E9-10	W2 Control Board
Subcarrier #3 Disable	E11-12	W3 Control Board
Subcarrier Deviation		R5 Audio Board
Subcarrier Level		R25
Subcarrier Modulation Linearity		L3 and C28
Subcarrier Level and Linearity		L4
DC Volt to RF	+14	TB3-3 and 4
DC Power Fuse	2A	F1
DC Output Adjust		R2
Alarm Circuit Disable		W6
Alarm Threshold		R16
Factory Test Jumper		W4
TRANSMITTER RF HEAD		
Regulator Input	+14	
Gunn Voltage	+5.5	Typical set as marked on Gunn.
Modulated Gunn Voltage	+5.5	Typical set as marked on Gunn.
Gunn Current	920 mA	
RECEIVER CONTROLLER		
Baseband Output Level	1V P-P	R33
Video Output Level	1V P-P	R69
Video Invert Jumper		W2
De-Emphasis Select	525 or 626	W3
De-Emphasis	525	R19 and R22
Audio Output	+9 dBm	R9 w/1 kHz test tone.
Audio Output Impedance	600 Ohm Balanced	W1 and W2
Audio De-Emphasis Disable		W3
Subcarrier Level and Linearity		L5
Squelch	−78 dB	R60
Factory Test Jumper		W1
DC Volt to RF	±20	
DC Power Fuse (+)	2A	F1
DC Power Fuse (−)	0.5A	F2
Meter Zero		R52
RECEIVER RF HEAD		
Regulator Input	+20 and −18	
Gunn Voltage	+5.5	Typical set as marked on Gunn
Modulated Gunn Voltage	+5.5	Typical set as marked on Gunn
Gunn Current	320 mA	

Gunn Alignment

Transmitter

Step 1. With a 23 GHz frequency counter and waveguide transition, sample the frequency in front of the TX Antenna radome or attach a WR-75 to Type N adapter to the MA-23CC RF outdoor unit WR-42 flange.

Step 2. Carefully loosen the support locking nut on the Gunn tuning slug with a 5/64 Allen wrench.

Step 3. Then with a slotted screw driver, adjust the tuning slug carefully (one turn equals a 1.2 GHz change in frequency) to obtain the correct frequency.

Step 4. For optimum operating range, set the frequency within 7 MHz at 25°C.

Step 5. To increase the frequency, turn the tuning slug counter-clockwise (ccw).

Step 6. To decrease the frequency, turn the tuning slug clockwise (cw).

Step 7. This adjustment is very fragile and is not covered under warranty if damaged.

Step 8. Note: frequency may change while tightening the locking collar.

Receiver

Step 1. Attach a 140 MHz spectrum analyzer to the IF cable output.

Step 2. Loosen the Gunn locking nut located on the Gunn with a hollowed out 1/4" nut driver and slotted screw driver.

Step 3. This adjustment is very fragile and is not covered under warranty if damaged, so be very carefull. One turn equals a 1.2 GHz change in frequency.

Step 4. While monitoring the 140 MHz signal on the spectrum, carefully loosen the lock nut with the nut driver and at the same time maintain pressure on the screw driver to prevent movement of the screw adjustment.

Step 5. Back the locking nut off by 1/4 turn and adjust the screw clockwise (cw) if a decrease in frequency is required.

Step 6. Turn the screw counter-clockwise (ccw), if an increase in frequency is required.

Step 7. Upon completion, resecure the locking nut.

Step 8. The actual LO frequency may be tuned 140 MHz above or below the Transmitter frequency, depending on the system configuration.

SECTION 5
TRANSMITTER CONTROL UNIT DIAGRAMS/PARTS LISTS

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PN 842456-3 5-66

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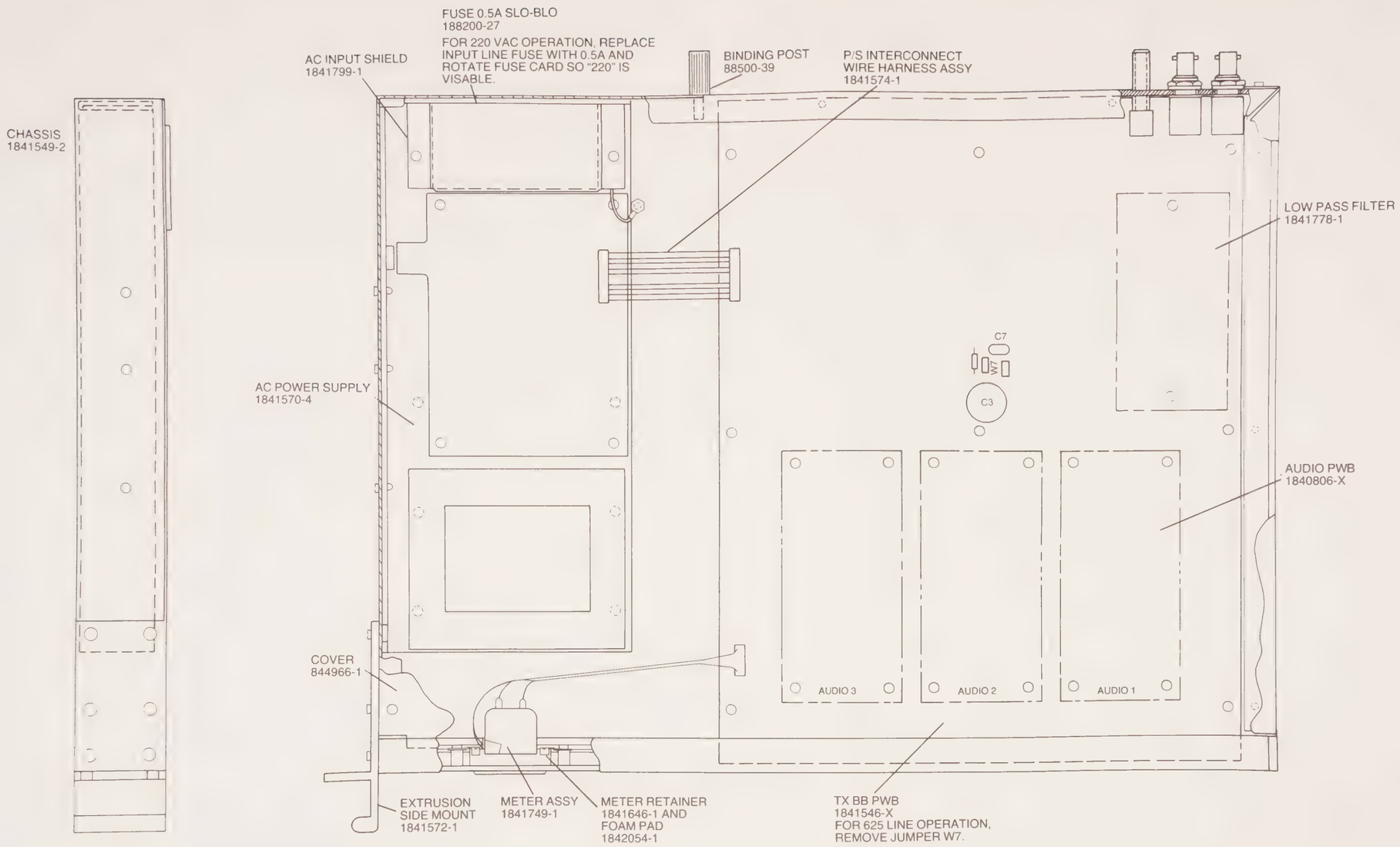


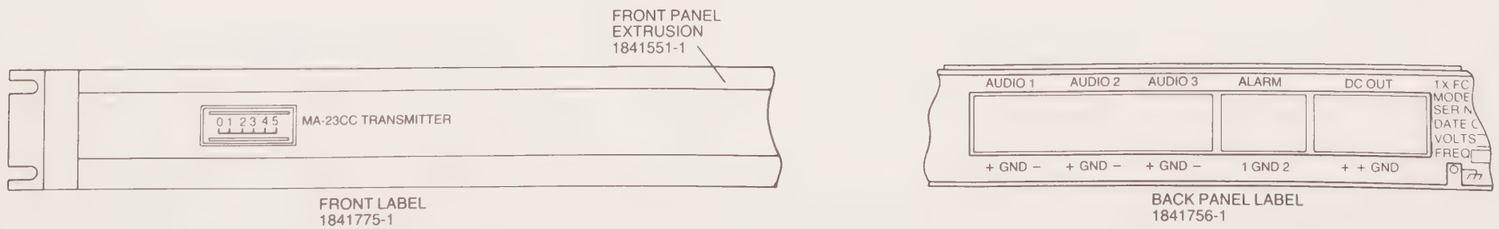


Figure 5-1. Transmitter Assembly
PN 1841548

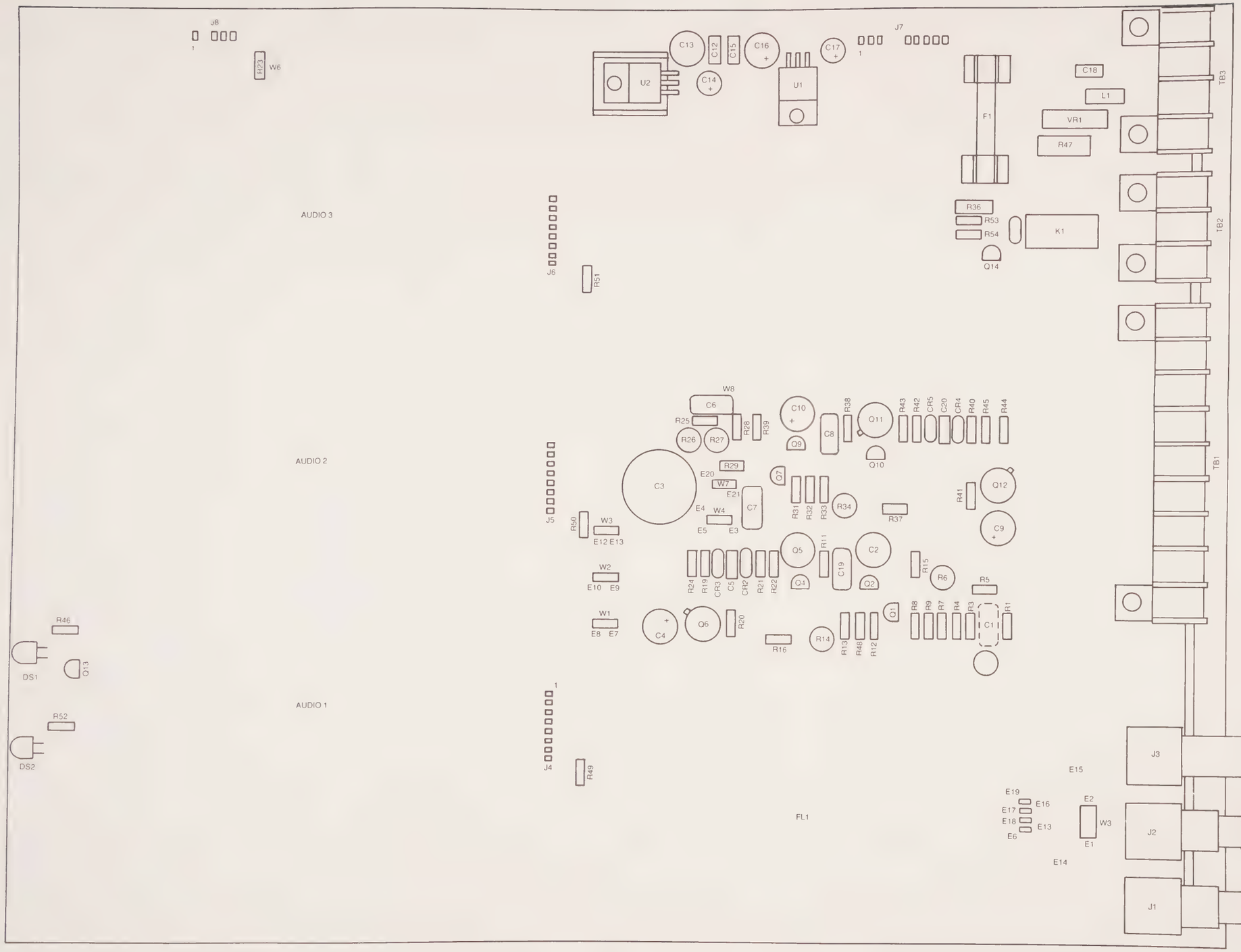


Figure 5-2. Transmitter Baseband Board PN 1841546 – Component Location/ Schematic Diagram (Sheet 1 of 2)

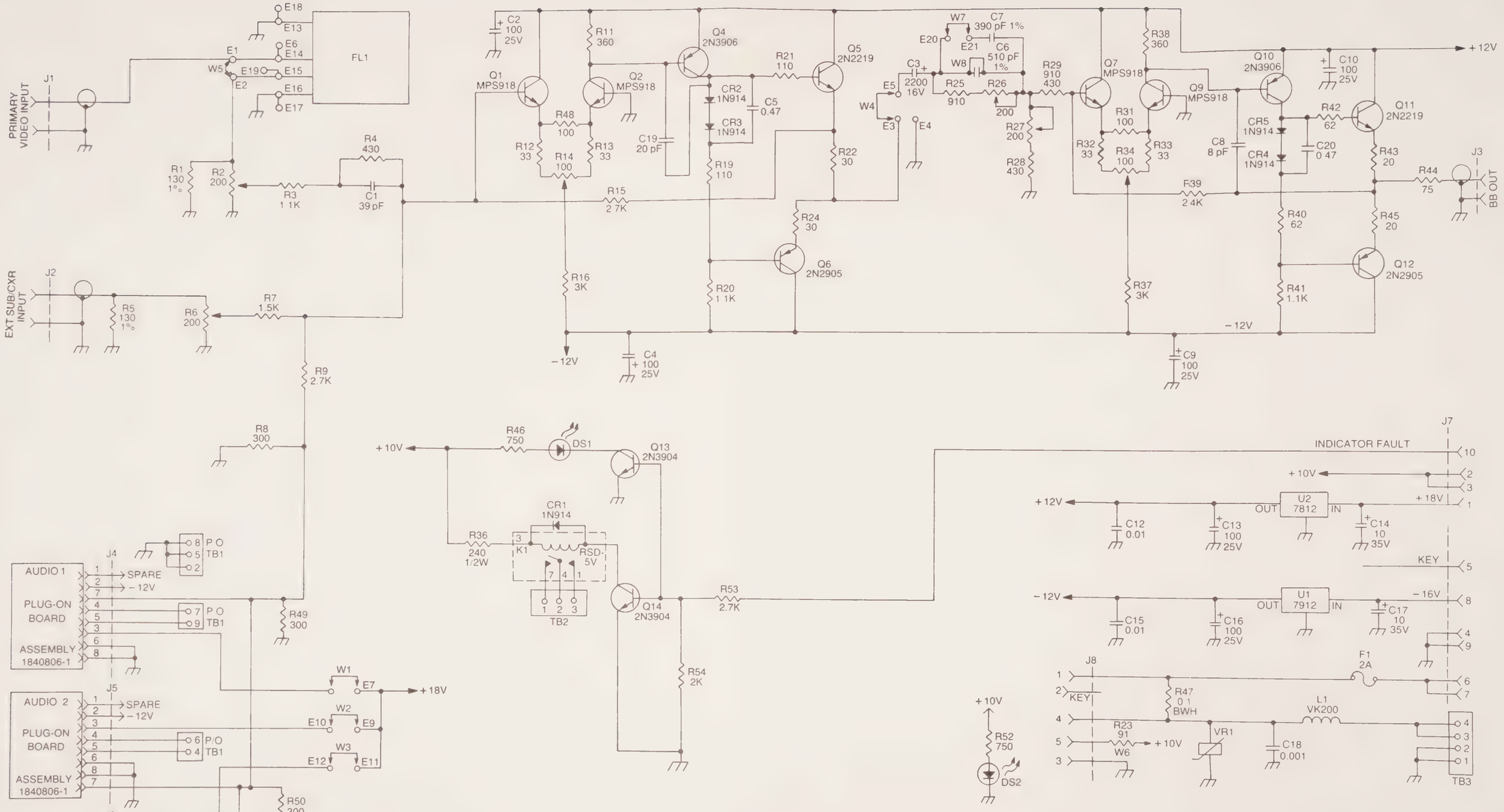
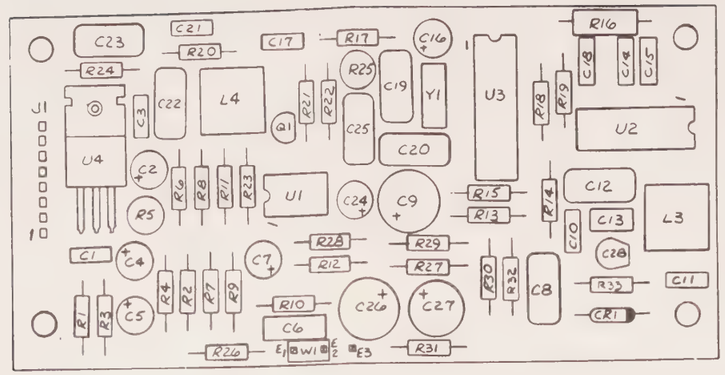


Figure 5-2. Transmitter Baseband Board PN 1841546 – Component Location/ Schematic Diagram (Sheet 2 of 2)



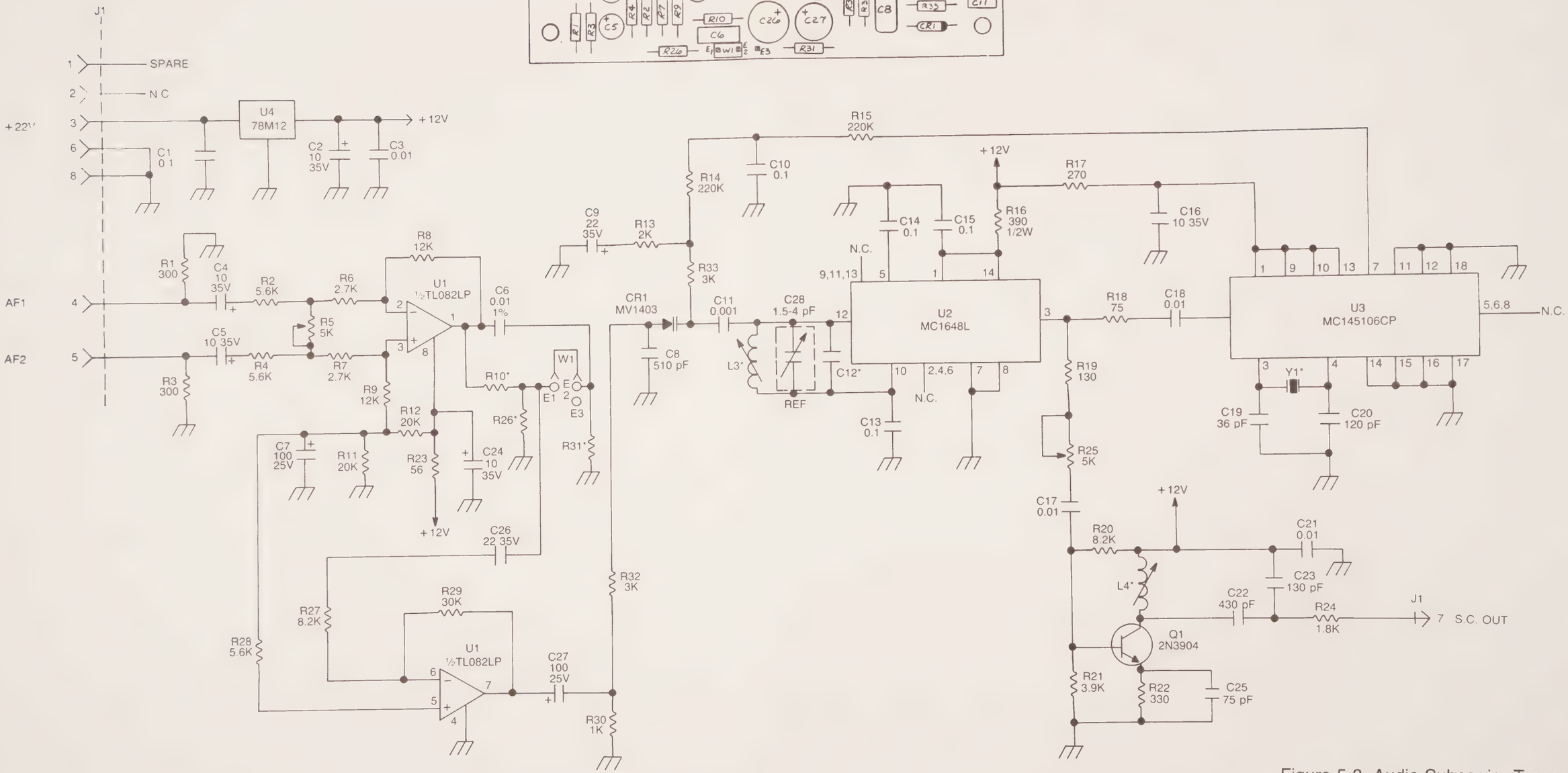


Figure 5-3. Audio Subcarrier Transmitter PN 1840806 – Component Location/ Schematic Diagram

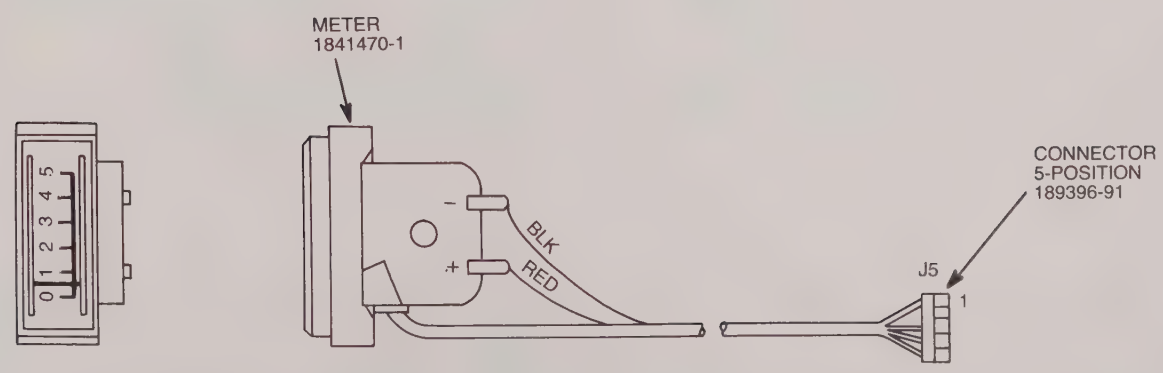


Figure 5-4. Meter Assembly PN 1841749-1

J1 Pin Functions

Pin #	Function
1	Alarm Out 5V
2	GND
3	– 20V Unreg
4	+ 14V Reg
5	+ 14V Reg
6	KEY
7	GND
8	+ 10.5V Unreg
9	+ 10.5V Unreg
10	+ 18V Unreg

Wiring List

LINE	FROM	TO	COLOR
1	XFMR 10V	PWA-E3	BLU
2	XFMR 0V	PWA-E4	BLU/WHT
3	XFMR 16V	PWA-E5	VIO
4	XFMR 0V	PWA-E7	VIO/WHT
5	XFMR 18V	PWA-E6	RED/YEL
6	XFMR 17V	PWA-E2	RED/WHT
7	XFMR 0V	PWA-E1	RED
8	XFMR 0V	FILTER F	BLK
9	XFMR 120V	FILTER D	WHT
10	XFMR 100V	FILTER A	YEL
11	XFMR 120V	FILTER C	ORN
12	XFMR 0V	FILTER E	BRN
15	FILTER B	FILTER L	BLK
16	FILTER J	FILTER N	WHT
17	FILTER GND	GND	GRN/YEL
18	CR1 –	E16	N/A
19	CR1 +	E18	N/A
20	CR1 AC	E17	N/A
21	CR1 AC	E15	N/A
22	CR3 –	E12	N/A
23	CR3 +	E14	N/A
24	CR3 AC	E13	N/A
25	CR3 AC	E11	N/A

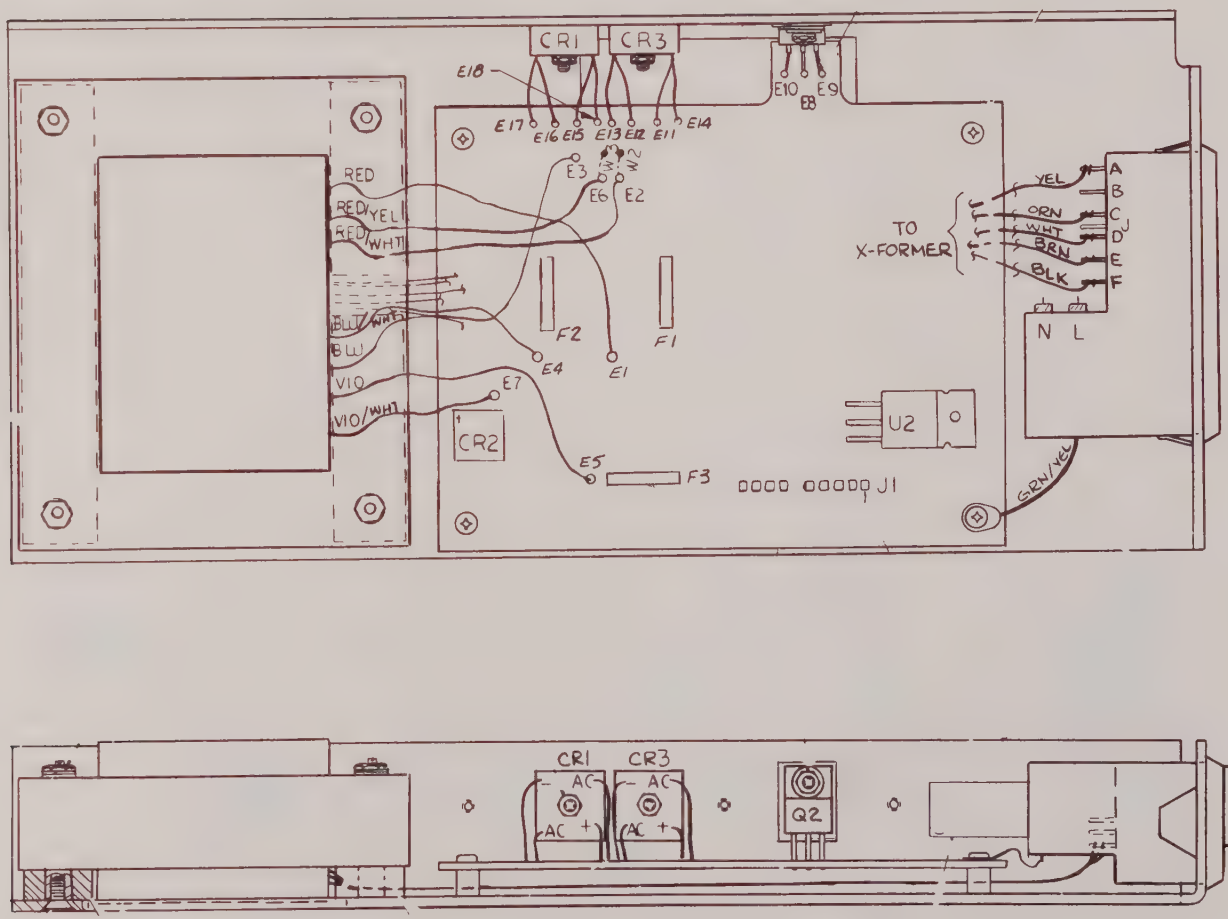


Figure 5-5. Power Supply PN 1841570-4 – Assembly Wiring/Schematic Diagram (Sheet 1 of 2)

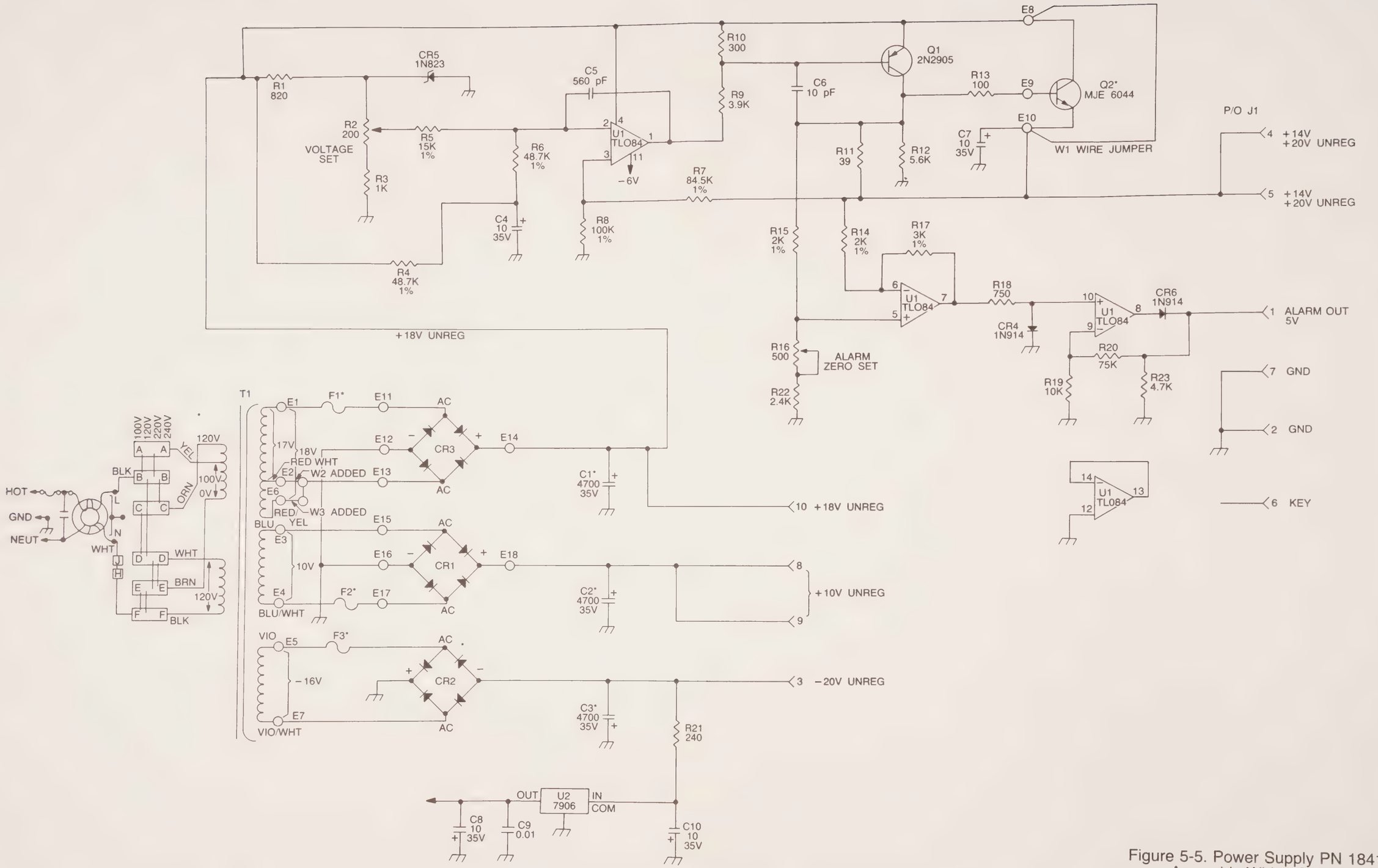


Figure 5-5. Power Supply PN 1841570-4 – Assembly Wiring/Schematic Diagram (Sheet 2 of 2)

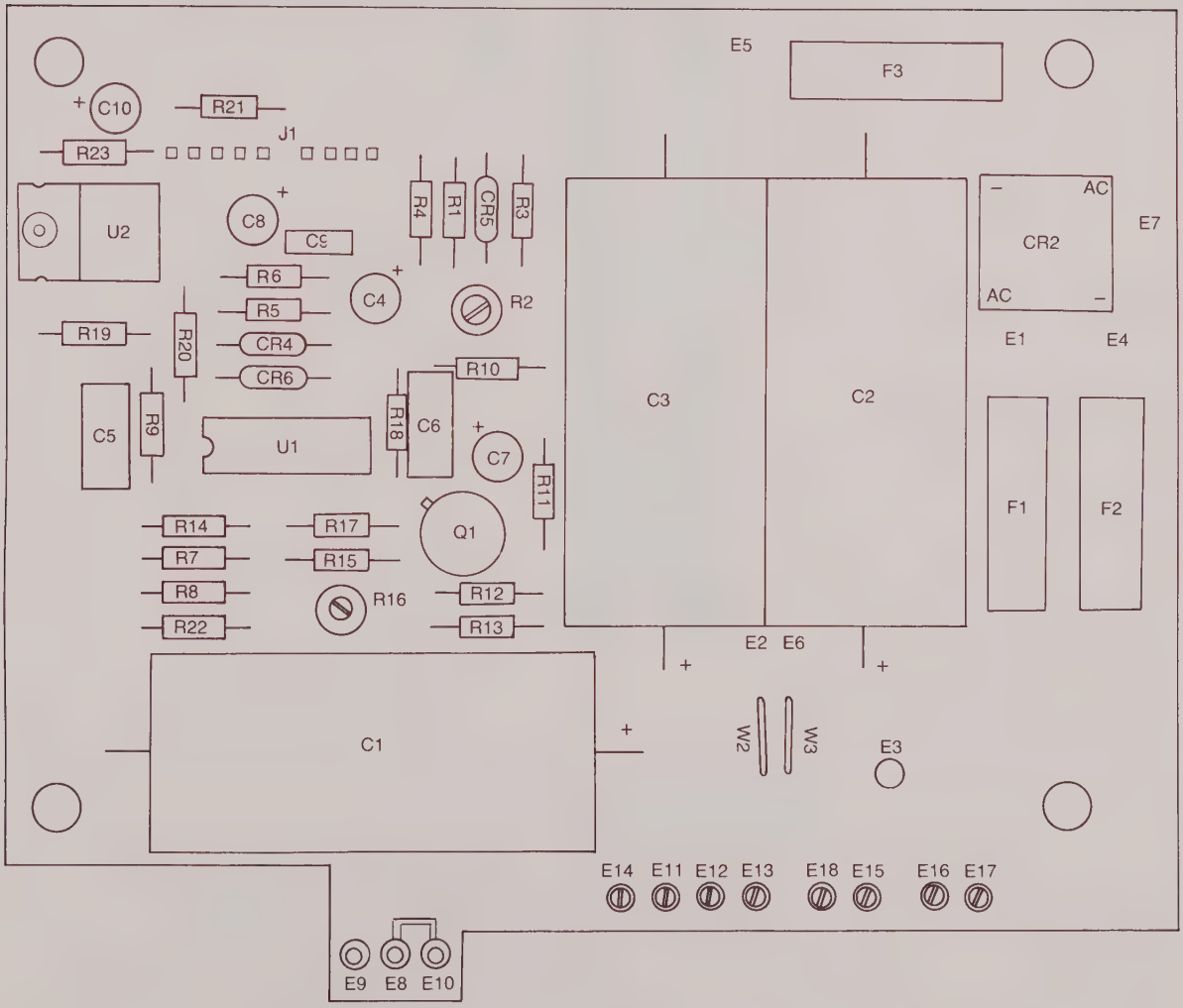


Figure 5-6. Power Supply PN 1841554-4 – Component Location

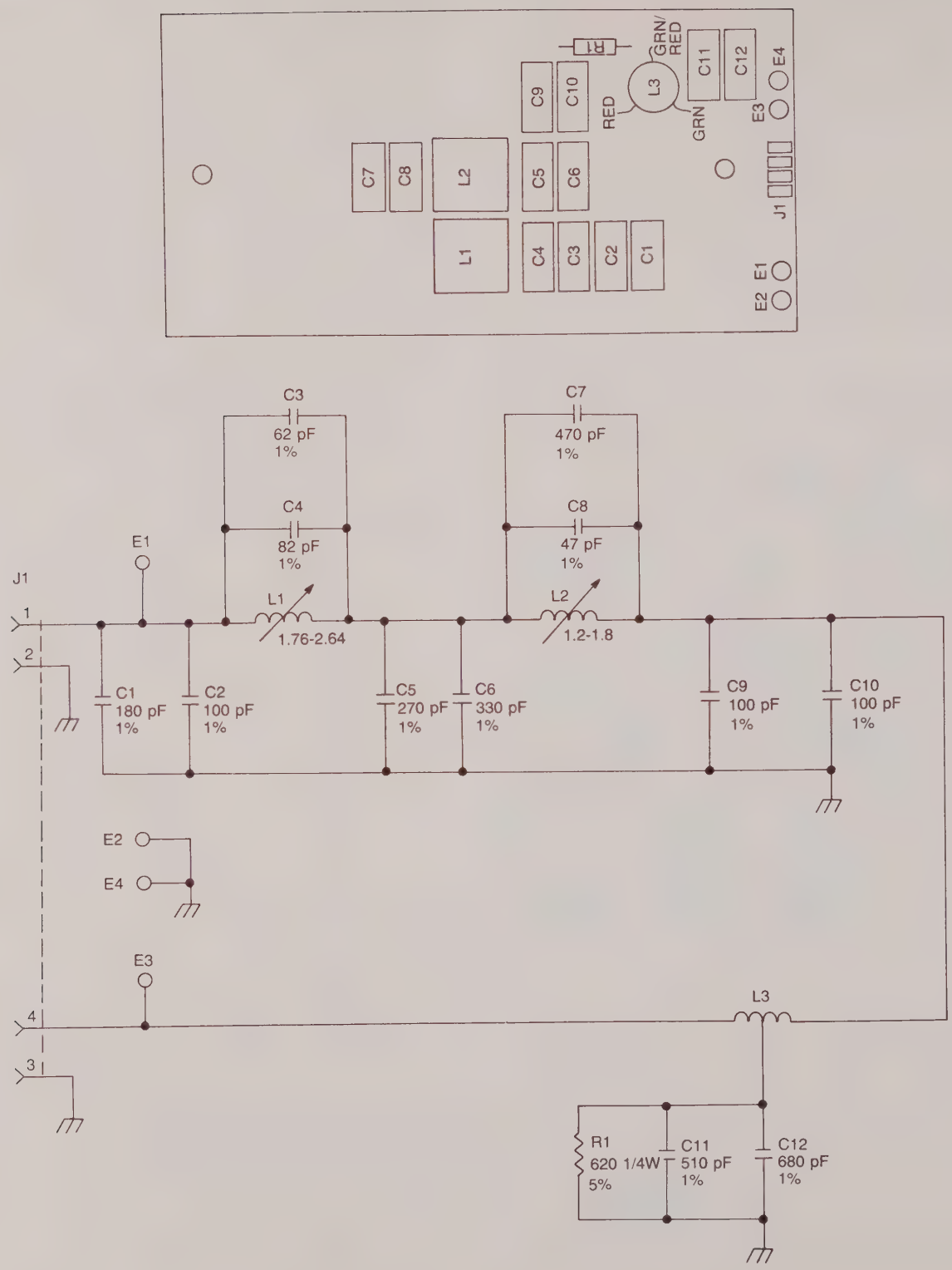


Figure 5-7. Video Low Pass Filter PN 1841778-1 (Optional) – Component Location/Schematic Diagram

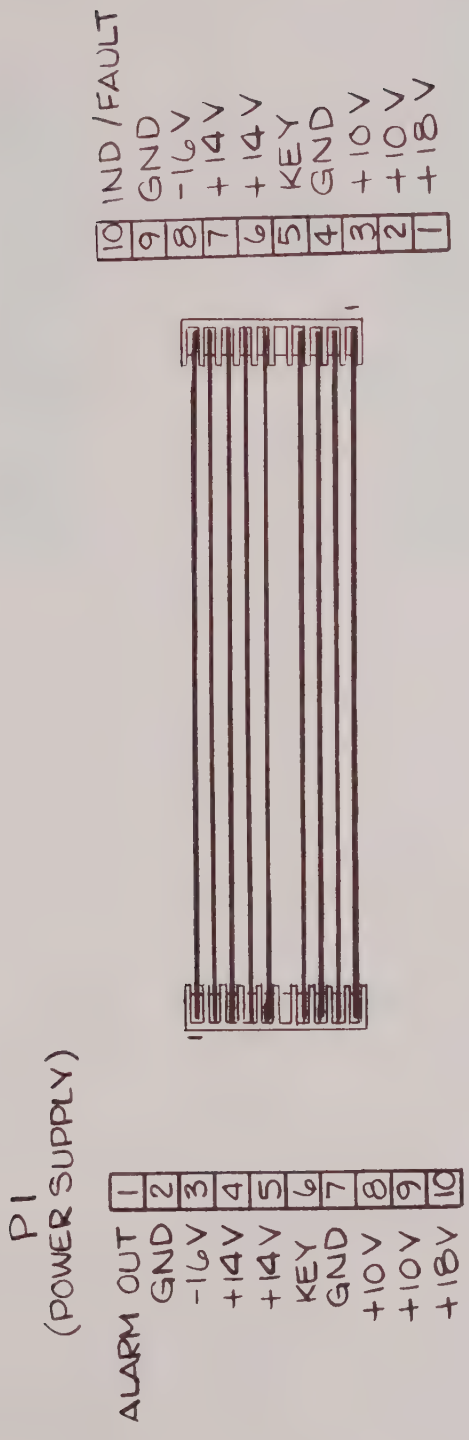


Figure 5-8. Power Supply Interconnect Wiring Harness PN 1841574-1

TRANSMITTER ASSEMBLY (525 LINE) PN 1841548-1

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	Chassis	1841549-2	MAC
	Transmitter Baseband Board	1841546-1	MAC
	Power Supply Assembly	1841570-4	MAC
	Meter Assembly	1841749-1	MAC
	Wire Harness Assembly (P/S Interconnect)	1841574-1	MAC
	Transmitter Audio PWB Assembly	1840806-99	MAC
	Low Pass Filter PWB Assembly (Optional)	1841778-1	MAC
	Foam Pad	1842054-1	MAC
	AC Input Shield	1841799-1	MAC
	Meter Retainer	1841646-1	MAC
	Extrusion		
	Front Panel	1841551-1	MAC
	Side Mount	1841572-1	MAC
	Top Cover	844966-1	MAC
	Labels		
	Front	1841775-1	MAC
	Back	1841756-1	MAC
	Fuse	842359-1	MAC
	Binding Post	88500-39	

TRANSMITTER ASSEMBLY (625 LINE) PN 1841548-2

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	Chassis	1841549-2	MAC
	Transmitter Baseband Board	1841546-1	MAC
	6.8 MHz Audio PWB Assembly	1840806-2	MAC
	Power Supply Assembly	1841570-4	MAC
	Meter Assembly	1841749-1	MAC
	Wire Harness Assembly (P/S Interconnect)	1841574-1	MAC
	Low Pass Filter PWB Assembly (Optional)	1841778-1	MAC
	Foam Pad	1842054-1	MAC
	AC Input Shield	1841799-1	MAC
	Meter Retainer	1841646-1	MAC
	Extrusion		
	Front Panel	1841551-1	MAC
	Side Mount	1841572-1	MAC
	Top Cover	844966-1	MAC
	Labels		
	Front Panel	1841775-1	MAC
	Back Panel	1841756-1	MAC
	Fuse	842359-1	MAC
	Binding Post	88500-39	
	Fuse, 0.5A Slo-Blo	188200-27	

TRANSMITTER ASSEMBLY (1000 LINE) PN 1841548-3

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	Chassis	1841549-2	MAC
	Transmitter Baseband Board	1841546-2	MAC
	6.2 MHz Audio PWB Assembly	1840806-1	MAC
	6.8 MHz Audio PWB Assembly	1840806-2	MAC
	Power Supply Assembly	1841570-4	MAC
	Meter Assembly	1841749-1	MAC
	Wire Harness Assembly (P/S Interconnect)	1841574-1	MAC
	Low Pass Filter PWB Assembly (Optional)	1841778-1	MAC
	Foam Pad	1842054-1	MAC
	AC Input Shield	1841799-1	MAC
	Meter Retainer	1841646-1	MAC
	Extrusion		
	Front Panel	1841551-1	MAC
	Side Mount	1841572-1	MAC
	Top Cover	844496-1	MAC
	Labels		
	Front Panel	1841775-1	MAC
	Back Panel	1841776-1	MAC
	Fuse	842359-1	MAC
	Binding Post	88500-39	

TRANSMITTER ASSEMBLY (WIDEBAND) PN 1841548-4

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	Chassis	1841549-2	MAC
	Transmitter Baseband Board	1841546-3	MAC
	Power Supply Assembly	1841570-4	MAC
	Meter Assembly	1841749-1	MAC
	Wire Harness Assembly (P/S Interconnect)	1841574-1	MAC
	Low Pass Filter PWB Assembly (Optional)	1841778-1	MAC
	Foam Pad	1842054-1	MAC
	AC Input Shield	1841799-1	MAC
	Meter Retainer	1841646-1	MAC
	Extrusion		
	Front Panel	1841551-1	MAC
	Side Mount	1841572-1	MAC
	Top Cover	844966-1	MAC
	Labels		
	Front Panel	1841775-1	MAC
	Back Panel	1841776-1	MAC
	Fuse	842359-1	MAC
	Binding Post	88500-39	

TRANSMITTER BOARD PWB ASSEMBLY PN 1841546-1

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	39 pF	189097	CM05ED390J03
C2	100	189719-4	CM05ED101J03
C3	2200	189018-25	
C4	100	189719-4	CM05ED101J03
C5	0.47, 63V	189010-9	
C6	510 pF, 1%	189018-7	CM05ED511J03
C7	390 pF, 500V, 1%	189017-1	CM05ED391J03
C8	8 pF	189008-86	CM05ED080J03
C9,C10	100	189719-4	CM05ED101J03
C12	0.01	189010-2	
C13	100	189719-4	CM05ED101J03
C14	10, 35V	189719-9	Hilton SWT35Z10
C15	0.01	189010-2	
C16	100	189719-4	CM05ED101J03
C17	10, 35V	189719-9	Hilton SWT35Z10
C18	0.001	189010-1	
C19	20 pF	189008-5	CM05ED020J03
C20	0.47, 63V	189010-9	
	DIODES		
CR1,CR2,CR3,CR4,CR5	1N4148	189405	
	LEDS		
DS1,DS2	Red	189904-41	
	TERMINALS		
E1,E2,E3,E4,E5,E6, E7,E8,E9,E10,E11,E12	Pin	188500-29	Berg 75401
E13,E14,E15,E16	Terminal, Bifurcated	184844-33	
E17,E18,E19,E20,E21	Pin	188500-29	Berg 75401
	FUSES		
F1	2A, AGC	188200-2	
	CONNECTORS		
J1,J2	BNC (F)	188357-48	
J3	F (F)	189397-5	
J4,J5,J6,J7,J8	Pin	188500-29	Berg 75401
	RELAYS		
K1	Relay	189800-28	Aromat RSD-5V

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L1	Inductor	189169-37	Ferroxcube VK200-10/3B
	TRANSISTORS		
Q1,Q2	MPS918	189774	
Q4	2N3906	189727	Motorola
Q5	2N2219	187223-21	
Q6	2N2905	189728-12	
Q7,Q9	MPS918	189774	
Q10	2N3906	189727	Motorola
Q11	2N2219	187223-21	
Q12	2N2905	189728-12	
Q13,Q14	2N3904	189700	Motorola
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	130, 1/8W, 1%	189327-27	RN55D130RF
R2	Potentiometer, 200	188453-74	
R3	1.1K	189200-27	RC07GF112J
R4	430	189238-31	RC07GF431J
R5	130, 1/8W, 1%	189327-27	RN55D130RF
R6	Potentiometer, 200	188453-74	
R7	1.5K	189236	RC07GF152J
R8	300	189486	RC07GF301J
R9	2.7K	189181	RC07GF272J
R11	360	189200-11	RC07GF361J
R12,R13	33	189478A	RC07GF330J
R14	Potentiometer, 100	188453-33	
R15	2.7K	189181	RC07GF272J
R16	3K	189490	RC07GF301J
R19	110	189483	RC07GF111J
R20	1.1K	189200-27	RC07GF112J
R21	110	189483	RC07GF111J
R22	30	189238-25	RC07GF300J
R23	91	189200-25	RC07GF910J
R24	30	189238-25	RC07GF300J
R25	910	189200-19	RC07GF911J
R26,R27	Potentiometer, 200	188453-74	
R28,R29	430	189238-31	RC07GF431J
R31	100	189202	RC07GF101J
R32,R33	33	189478	RC07GF330J

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
R34	Potentiometer, 100	188453-33	
R36	240, 1/2W, 5%	189575-7	RC20GF241J
R37	3K	189490	RC07GF301J
R38	360	189200-11	RC07GF361J
R39	2.4K	189489	RC07GF242J
R40	62	189481-18	RC07GF620J
R41	1.1K	189200-27	RC07GF112J
R42	62	189481-18	RC07GF620J
R43	20	189477	RC07GF200J
R44	75	189280	RC07GF750J
R45	20	189477	RC07GF200J
R46	750	189487	RC07GF751J
R47	0.1, 2W	188539-64	IRC-BWH
R48	100	189202	RC07GF101J
R49,R50,R51	300	189486	RC07GF301J
R52	750	189487	RC07GF751J
R53	2.7K	189181	RC07GF272J
R54	2K	189488	RC07GF201J
	TERMINAL BLOCKS		
TB1	9 Position	189892-26	
TB2	3 Position	189892-24	
TB3	4 Position	189892-25	
	INTEGRATED CIRCUITS		
U1	µA79M12AUC	189976-92	
U2	µA78M12AUC	189889-25	
	VARISTORS		
VR1	Varistor V47-ZA7	189195-1	GE
	SHORTING PLUGS		
W1,W2,W3,W4,W5,W7	Shorting Plug	188500-23	

TRANSMITTER BOARD PWB ASSEMBLY PN 1841546-2

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	39 pF	189097	CM05ED390J03
C2	100	189719-4	CM05ED101J03
C3	2200	189018-25	
C4	100	189719-4	CM05ED101J03
C5	0.47, 63V	189010-9	
C6	510 pF, 1%	189018-7	CM05ED511J03
C7	390 pF, 500V, 1%	189017-1	CM05ED391J03
C8	8 pF	189008-86	CM05ED080J03
C9,C10	100	189719-4	CM05ED101J03
C12	0.01	189010-2	
C13	100	189719-4	CM05ED101J03
C14	10, 35V	189719-9	Hilton SWT35Z10
C15	0.01	189010-2	
C16	100	189719-4	CM05ED101J03
C17	10, 35V	189719-9	Hilton SWT35Z10
C18	0.001	189010-1	
C19	20 pF	189008-5	CM05ED020J03
C20	0.47, 63V	189010-9	
	DIODES		
CR1,CR2,CR3,CR4,CR5	1N4148	189405	
	LEDS		
DS1,DS2	Red	189904-41	
	TERMINALS		
E1,E2,E3,E4,E5,E6, E7,E8,E9,E10,E11,E12	Pin	188500-29	Berg 75401
E13,E14,E15,E16	Terminal, Bifurcated	184844-33	
E17,E18,E19,E20,E21	Pin	188500-29	Berg 75401
	FUSES		
F1	2A, AGC	188200-2	
	CONNECTORS		
J1,J2	BNC (F)	188357-48	
J3	F (F)	189397-5	
J4,J5,J6,J7,J8	Pin	188500-29	Berg 75401
	RELAYS		
K1	Relay	189800-28	Aromat RSD-5V

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L1	Inductor	189169-37	Ferroxcube VK200-10/3B
	TRANSISTORS		
Q1,Q2	MPS918	189774	
Q4	2N3906	189727	Motorola
Q5	2N2219	187223-21	
Q6	2N2905	189728-12	
Q7,Q9	MPS918	189774	
Q10	2N3906	189727	Motorola
Q11	2N2219	187223-21	
Q12	2N2905	189728-12	
Q13,Q14	2N3904	189700	Motorola
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	130, 1/8W, 1%	189327-27	RN55D130RF
R2	Potentiometer, 200	188453-74	
R3	1.1K	189200-27	RC07GF112J
R4	430	189238-31	RC07GF431J
R5	130, 1/8W, 1%	189327-27	RN55D130RF
R6	Potentiometer, 200	188453-74	
R7	1.5K	189236	RC07GF152J
R8	300	189486	RC07GF301J
R9	2.7K	189181	RC07GF272J
R11	360	189200-11	RC07GF361J
R12,R13	33	189478A	RC07GF330J
R14	Potentiometer, 100	188453-33	
R15	2.7K	189181	RC07GF272J
R16	3K	189490	RC07GF301J
R19	110	189483	RC07GF111J
R20	1.1K	189200-27	RC07GF112J
R21	110	189483	RC07GF111J
R22	30	189238-25	RC07GF300J
R23	91	189200-25	RC07GF910J
R24	30	189238-25	RC07GF300J
R25	910	189200-19	RC07GF911J
R26,R27	Potentiometer, 200	188453-74	
R28,R29	430	189238-31	RC07GF431J
R31	100	189202	RC07GF101J
R32,R33	33	189478	RC07GF330J

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
R34	Potentiometer, 100	188453-33	
R36	240, 1/2W, 5%	189575-7	RC20GF241J
R37	3K	189490	RC07GF301J
R38	360	189200-11	RC07GF361J
R39	2.4K	189489	RC07GF242J
R40	62	189481-18	RC07GF620J
R41	1.1K	189200-27	RC07GF112J
R42	62	189481-18	RC07GF620J
R43	20	189477	RC07GF200J
R44	75	189280	RC07GF750J
R45	20	189477	RC07GF200J
R46	750	189487	RC07GF751J
R47	0.1, 2W	188539-64	IRC-BWH
R48	100	189202	RC07GF101J
R49,R50,R51	300	189486	RC07GF301J
R52	750	189487	RC07GF751J
R53	2.7K	189181	RC07GF272J
R54	2K	189488	RC07GF201J
	TERMINAL BLOCKS		
TB1	9 Position	189892-26	
TB2	3 Position	189892-24	
TB3	4 Position	189892-25	
	INTEGRATED CIRCUITS		
U1	µA79M12AUC	189976-92	
U2	µA78M12AUC	189889-25	
	VARISTORS		
VR1	Varistor V47-ZA7	189195-1	GE
	SHORTING PLUGS		
W1,W2,W3,W4,W5,W7	Shorting Plug	188500-23	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
TRANSMITTER BOARD PWB ASSEMBLY PN 1841546-3			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	39 pF	189097	CM05ED390J03
C2	100	189719-4	CM05ED101J03
C3	2200	189018-25	
C4	100	189719-4	CM05ED101J03
C5	0.47, 63V	189010-9	
C6	510 pF, 1%	189018-7	CM05ED511J03
C7	390 pF, 500V, 1%	189017-1	CM05ED391J03
C8	8 pF	189008-86	CM05ED080J03
C9,C10	100	189719-4	CM05ED101J03
C12	0.01	189010-2	
C13	100	189719-4	CM05ED101J03
C14	10, 35V	189719-9	Hilton SWT35Z10
C15	0.01	189010-2	
C16	100	189719-4	CM05ED101J03
C17	10, 35V	189719-9	Hilton SWT35Z10
C18	0.001	189010-1	
C19	20 pF	189008-5	CM05ED020J03
C20	0.47, 63V	189010-9	
	DIODES		
CR1,CR2,CR3,CR4,CR5	1N4148	189405	
	LEDS		
DS1,DS2	Red	189904-41	
	TERMINALS		
E1,E2,E3,E4,E5,E6, E7,E8,E9,E10,E11,E12	Pin	188500-29	Berg 75401
E13,E14,E15,E16	Terminal, Bifurcated	184844-33	
E17,E18,E19,E20,E21	Pin	188500-29	Berg 75401
	FUSES		
F1	2A, AGC	188200-2	
	CONNECTORS		
J1,J2	BNC (F)	188357-48	
J3	F (F)	189397-5	
J4,J5,J6,J7,J8	Pin	188500-29	Berg 75401
	RELAYS		
K1	Relay	189800-28	Aromat RSD-5V

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L1	Inductor	189169-37	Ferroxcube VK200-10/3B
	TRANSISTORS		
Q1,Q2	MPS918	189774	
Q4	2N3906	189727	Motorola
Q5	2N2219	187223-21	
Q6	2N2905	189728-12	
Q7,Q9	MPS918	189774	
Q10	2N3906	189727	Motorola
Q11	2N2219	187223-21	
Q12	2N2905	189728-12	
Q13,Q14	2N3904	189700	Motorola
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	130, 1/8W, 1%	189327-27	RN55D130RF
R2	Potentiometer, 200	188453-74	
R3	1.1K	189200-27	RC07GF112J
R4	430	189238-31	RC07GF431J
R5	130, 1/8W, 1%	189327-27	RN55D130RF
R6	Potentiometer, 200	188453-74	
R7	1.5K	189236	RC07GF152J
R8	300	189486	RC07GF301J
R9	2.7K	189181	RC07GF272J
R11	360	189200-11	RC07GF361J
R12,R13	33	189478A	RC07GF330J
R14	Potentiometer, 100	188453-33	
R15	2.7K	189181	RC07GF272J
R16	3K	189490	RC07GF301J
R19	110	189483	RC07GF111J
R20	1.1K	189200-27	RC07GF112J
R21	110	189483	RC07GF111J
R22	30	189238-25	RC07GF300J
R23	91	189200-25	RC07GF910J
R24	30	189238-25	RC07GF300J
R25	910	189200-19	RC07GF911J
R26,R27	Potentiometer, 200	188453-74	
R28	430	189238-31	RC07GF431J
R29	910	189200-19	RC07GF911J
R31	100	189202	RC07GF101J
R32,R33	33	189478	RC07GF330J

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
R34	Potentiometer, 100	188453-33	
R36	240, 1/2W, 5%	189575-7	RC20GF241J
R37	3K	189490	RC07GF301J
R38	360	189200-11	RC07GF361J
R39	2.4K	189489	RC07GF242J
R40	62	189481-18	RC07GF620J
R41	1.1K	189200-27	RC07GF112J
R42	62	189481-18	RC07GF620J
R43	20	189477	RC07GF200J
R44	75	189280	RC07GF750J
R45	20	189477	RC07GF200J
R46	750	189487	RC07GF751J
R47	0.1, 2W	188539-64	IRC-BWH
R48	100	189202	RC07GF101J
R49,R50,R51	300	189486	RC07GF301J
R52	750	189487	RC07GF751J
R53	2.7K	189181	RC07GF272J
R54	2K	189488	RC07GF201J
	TERMINAL BLOCKS		
TB1	9 Position	189892-26	
TB2	3 Position	189892-24	
TB3	4 Position	189892-25	
	INTEGRATED CIRCUITS		
U1	µA79M12AUC	189976-92	
U2	µA78M12AUC	189889-25	
	VARISTORS		
VR1	Varistor V47-ZA7	189195-1	GE
	SHORTING PLUGS		
W1,W2,W3,W4,W5,W7	Shorting Plug	188500-23	
W8	Wire, Kynar #22 AWG	188328-7	

TRANSMITTER AUXILIARY AUDIO PWB ASSSEMBLY (6.2 MHz/75 μs) 1840806-1

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	0.01	189010-2	
C2	10, 35V	189719-9	Hilton SWT35Z10
C3	0.01	189010-2	
C4,C5	10, 35V	189719-9	Hilton SWT35Z10
C6	0.01, 1%	188212-87	
C7	100, 25V	189719-4	Hilton SWT25Z10
C8	510 pF, 5%	89009-44	DM12
C9	22, 35V	189139-42	Hilton SWT35Z22
C10	0.1	189010-4	
C11	0.001	189010-1	
C12	20 pF, 5%	89009-28	DM12
C13,C14,C15	0.1	189010-4	
C16	10, 35V	189719-9	Hilton SWT35Z10
C17,C18	0.01	189010-2	
C19	36 pF, 5%	89009-40	DM12
C20	120 pF, 5%	89009-41	DM12
C21	0.01	189010-2	
C22	430 pF, 5%	89009-73	DM12
C23	130 pF, 5%	89009-42	DM12
C24	10, 35V	189719A-9	Hilton SWT35Z10
C25	75 pF, 5%	89009-74	DM12
C26	22, 35V	189139-42	Hilton SWT35Z22
C27	100, 25V	189719-4	Hilton SWT25Z100
	DIODES		
CR1	MV1403	189440-78	
	TERMINALS		
E1,E2,E3	Pin	188500-29	Berg 75401
	CONNECTORS		
J1	Receptacle	188500-31	
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	7.5-17.0	189161-86	CB435-6
L4	3.5-8.5	189161-90	CB435-5
	TRANSISTORS		
Q1	2N3904	189700	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	300	189486	RC07GF301J
R2	5.6K	189226	RC07GF562J
R3	300	189486	RC07GF301J
R4	5.6K	189226	RC07GF562J
R5	Potentiometer, 5K	188453-32	
R6,R7	2.7K	189181	RC07GF272J
R8,R9	12K	189492	RC07GF123J
R10	7.68K, 1/8W, 1%	89327-96	RN55D7R68F
R11,R12	20K	189200-14	RC07GF203J
R13	2K	189488	RC07GF201J
R14,R15	220K	189238-33	RC07GF224J
R16	390, 1/2W, 5%	188026	RC20GF391J
R17	270	189485	RC07GF271J
R18	75	189280	RC07GF750J
R19	130	189200-17	RC07GF131J
R20	8.2K	189237	RC07GF822J
R21	3.9K	189224	RC07GF392J
R22	330	189205	RC07GF331J
R23	56	189232	RC07GF560J
R24	1.8K	188248	RC07GF182J
R25	Potentiometer, 5K	188453-32	
R26	332, 1/8W, 1%	189256-32	RN55D332RF
R27	8.2K	189237	RC07GF822J
R28	5.6K	189226	RC07GF562J
R29	30K	189481-25	RC07GF303J
R30	1K	189220	RC07GF101J
R31	3.48K, 1/8W, 1%	189327-91	RN55D3R48F
R32,R33	3K	189490	RC07GF301J
	INTEGRATED CIRCUITS		
U1	TL082CP	189889-85	
U2	MC1648L	189889-8	
U3	MC145106CP	189889-59	
U4	Voltage Regulator 78M12	189889-25	
	SHORTING PLUGS		
W1	Shorting Plug	188500-23	
	CRYSTALS		
Y1	15.8720	809745-3	MAC

TRANSMITTER AUXILIARY AUDIO PWB ASSSEMBLY (6.8 MHz/75 μs) 1840806-2

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	0.01	189010-2	
C2	10, 35V	189719-9	Hilton SWT35Z10
C3	0.01	189010-2	
C4,C5	10, 35V	189719-9	Hilton SWT35Z10
C6	0.01, 1%	188212-87	
C7	100, 25V	189719-4	Hilton SWT25Z10
C8	510 pF, 5%	89009-44	DM12
C9	22, 35V	189139-42	Hilton SWT35Z22
C10	0.1	189010-4	
C11	0.001	189010-1	
C12	30 pF, 5%	89009-25	DM12
C13,C14,C15	0.1	189010-4	
C16	10, 35V	189719-9	Hilton SWT35Z10
C17,C18	0.01	189010-2	
C19	36 pF, 5%	89009-40	DM12
C20	120 pF, 5%	89009-41	DM12
C21	0.01	189010-2	
C22	430 pF, 5%	89009-73	DM12
C23	130 pF, 5%	89009-42	DM12
C24	10, 35V	189719A-9	Hilton SWT35Z10
C25	75 pF, 5%	89009-74	DM12
C26	22, 35V	189139-42	Hilton SWT35Z22
C27	100, 25V	189719-4	Hilton SWT25Z100
	DIODES		
CR1	MV1403	189440-78	
	TERMINALS		
E1,E2,E3	Pin	188500-29	Berg 75401
	CONNECTORS		
J1	Receptacle	188500-31	
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	7.5-17.0	189161-86	CB435-6
L4	3.5-8.5	189161-90	CB435-5
	TRANSISTORS		
Q1	2N3904	189700	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	300	189486	RC07GF301J
R2	5.6K	189226	RC07GF562J
R3	300	189486	RC07GF301J
R4	5.6K	189226	RC07GF562J
R5	Potentiometer, 5K	188453-32	
R6,R7	2.7K	189181	RC07GF272J
R8,R9	12K	189492	RC07GF123J
R10	7.68K, 1/8W, 1%	89327-96	RN55D7R68F
R11,R12	20K	189200-14	RC07GF203J
R13	2K	189488	RC07GF201J
R14,R15	220K	189238-33	RC07GF224J
R16	390, 1/2W, 5%	188026	RC20GF391J
R17	270	189485	RC07GF271J
R18	75	189280	RC07GF750J
R19	130	189200-17	RC07GF131J
R20	8.2K	189237	RC07GF822J
R21	3.9K	189224	RC07GF392J
R22	330	189205	RC07GF331J
R23	56	189232	RC07GF560J
R24	1.8K	188248	RC07GF182J
R25	Potentiometer, 5K	188453-32	
R26	332, 1/8W, 1%	189256-32	RN55D332RF
R27	8.2K	189237	RC07GF822J
R28	5.6K	189226	RC07GF562J
R29	30K	189481-25	RC07GF303J
R30	1K	189220	RC07GF101J
R31	3.48K, 1/8W, 1%	189327-91	RN55D3R48F
R32,R33	3K	189490	RC07GF301J
	INTEGRATED CIRCUITS		
U1	TL082CP	189889-85	
U2	MC1648L	189889-8	
U3	MC145106CP	189889-59	
U4	Voltage Regulator 78M12	189889-25	
	SHORTING PLUGS		
W1	Shorting Plug	188500-23	
	CRYSTALS		
Y1	17.4080	809745-4	MAC

TRANSMITTER AUXILIARY AUDIO PWB ASSSEMBLY (7.5 MHz/75 μs) 1840806-3

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	0.01	189010-2	
C2	10, 35V	189719-9	Hilton SWT35Z10
C3	0.01	189010-2	
C4,C5	10, 35V	189719-9	Hilton SWT35Z10
C6	0.01, 1%	188212-87	
C7	100, 25V	189719-4	Hilton SWT25Z10
C8	510 pF, 5%	89009-44	DM12
C9	22, 35V	189139-42	Hilton SWT35Z22
C10	0.1	189010-4	
C11	0.001	189010-1	
C12	39 pF, 5%	89009-51	DM12
C13,C14,C15	0.1	189010-4	
C16	10, 35V	189719-9	Hilton SWT35Z10
C17,C18	0.01	189010-2	
C19	36 pF, 5%	89009-40	DM12
C20	120 pF, 5%	89009-41	DM12
C21	0.01	189010-2	
C22	430 pF, 5%	89009-73	DM12
C23	130 pF, 5%	89009-42	DM12
C24	10, 35V	189719A-9	Hilton SWT35Z10
C25	75 pF, 5%	89009-74	DM12
C26	22, 35V	189139-42	Hilton SWT35Z22
C27	100, 25V	189719-4	Hilton SWT25Z100
	DIODES		
CR1	MV1403	189440-78	
	TERMINALS		
E1,E2,E3	Pin	188500-29	Berg 75401
	CONNECTORS		
J1	Receptacle	188500-31	
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3,L4	3.5-8.5	189161-90	CB435-5
	TRANSISTORS		
Q1	2N3904	189700	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	300	189486	RC07GF301J
R2	5.6K	189226	RC07GF562J
R3	300	189486	RC07GF301J
R4	5.6K	189226	RC07GF562J
R5	Potentiometer, 5K	188453-32	
R6,R7	2.7K	189181	RC07GF272J
R8,R9	12K	189492	RC07GF123J
R10	7.68K, 1/8W, 1%	89327-96	RN55D7R68F
R11,R12	20K	189200-14	RC07GF203J
R13	2K	189488	RC07GF201J
R14,R15	220K	189238-33	RC07GF224J
R16	390, 1/2W, 5%	188026	RC20GF391J
R17	270	189485	RC07GF271J
R18	75	189280	RC07GF750J
R19	130	189200-17	RC07GF131J
R20	8.2K	189237	RC07GF822J
R21	3.9K	189224	RC07GF392J
R22	330	189205	RC07GF331J
R23	56	189232	RC07GF560J
R24	1.8K	188248	RC07GF182J
R25	Potentiometer, 5K	188453-32	
R26	332, 1/8W, 1%	189256-32	RN55D332RF
R27	8.2K	189237	RC07GF822J
R28	5.6K	189226	RC07GF562J
R29	30K	189481-25	RC07GF303J
R30	1K	189220	RC07GF101J
R31	3.48K, 1/8W, 1%	189327-91	RN55D3R48F
R32,R33	3K	189490	RC07GF301J
	INTEGRATED CIRCUITS		
U1	TL082CP	189889-85	
U2	MC1648L	189889-8	
U3	MC145106CP	189889-59	
U4	Voltage Regulator 78M12	189889-25	
	SHORTING PLUGS		
W1	Shorting Plug	188500-23	
	CRYSTALS		
Y1	19.2000	809745-5	MAC

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
TRANSMITTER AUXILIARY AUDIO PWB ASSSEMBLY (6.2 MHz/50 μs) 1840806-4			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	0.01	189010-2	
C2	10, 35V	189719-9	Hilton SWT35Z10
C3	0.01	189010-2	
C4,C5	10, 35V	189719-9	Hilton SWT35Z10
C6	0.01, 1%	188212-87	
C7	100, 25V	189719-4	Hilton SWT25Z10
C8	510 pF, 5%	89009-44	DM12
C9	22, 35V	189139-42	Hilton SWT35Z22
C10	0.1	189010-4	
C11	0.001	189010-1	
C12	20 pF, 5%	89009-28	DM12
C13,C14,C15	0.1	189010-4	
C16	10, 35V	189719-9	Hilton SWT35Z10
C17,C18	0.01	189010-2	
C19	36 pF, 5%	89009-40	DM12
C20	120 pF, 5%	89009-41	DM12
C21	0.01	189010-2	
C22	430 pF, 5%	89009-73	DM12
C23	130 pF, 5%	89009-42	DM12
C24	10, 35V	189719A-9	Hilton SWT35Z10
C25	75 pF, 5%	89009-74	DM12
C26	22, 35V	189139-42	Hilton SWT35Z22
C27	100, 25V	189719-4	Hilton SWT25Z100
	DIODES		
CR1	MV1403	189440-78	
	TERMINALS		
E1,E2,E3	Pin	188500-29	Berg 75401
	CONNECTORS		
J1	Receptacle	188500-31	
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	7.5-17.0	189161-86	CB435-6
L4	3.5-8.5	189161-90	CB435-5
	TRANSISTORS		
Q1	2N3904	189700	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	300	189486	RC07GF301J
R2	5.6K	189226	RC07GF562J
R3	300	189486	RC07GF301J
R4	5.6K	189226	RC07GF562J
R5	Potentiometer, 5K	188453-32	
R6,R7	2.7K	189181	RC07GF272J
R8,R9	12K	189492	RC07GF123J
R10	4.99K, 1/8W, 1%	189256-93	RN55D4R99F
R11,R12	20K	189200-14	RC07GF203J
R13	2K	189488	RC07GF201J
R14,R15	220K	189238-33	RC07GF224J
R16	390, 1/2W, 5%	188026	RC20GF391J
R17	270	189485	RC07GF271J
R18	75	189280	RC07GF750J
R19	130	189200-17	RC07GF131J
R20	8.2K	189237	RC07GF822J
R21	3.9K	189224	RC07GF392J
R22	330	189205	RC07GF331J
R23	56	189232	RC07GF560J
R24	1.8K	188248	RC07GF182J
R25	Potentiometer, 5K	188453-32	
R26	332, 1/8W, 1%	189256-32	RN55D332RF
R27	8.2K	189237	RC07GF822J
R28	5.6K	189226	RC07GF562J
R29	30K	189481-25	RC07GF303J
R30	1K	189220	RC07GF101J
R31	3.16K, 1/8W, 1%	189325	RN55D3R16F
R32,R33	3K	189490	RC07GF301J
	INTEGRATED CIRCUITS		
U1	TL082CP	189889-85	
U2	MC1648L	189889-8	
U3	MC145106CP	189889-59	
U4	Voltage Regulator 78M12	189889-25	
	SHORTING PLUGS		
W1	Shorting Plug	188500-23	
	CRYSTALS		
Y1	15.8720	809745-3	MAC

TRANSMITTER AUXILIARY AUDIO PWB ASSSEMBLY (6.8 MHz/50 μs) 1840806-5

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	0.01	189010-2	
C2	10, 35V	189719-9	Hilton SWT35Z10
C3	0.01	189010-2	
C4,C5	10, 35V	189719-9	Hilton SWT35Z10
C6	0.01, 1%	188212-87	
C7	100, 25V	189719-4	Hilton SWT25Z10
C8	510 pF, 5%	89009-44	DM12
C9	22, 35V	189139-42	Hilton SWT35Z22
C10	0.1	189010-4	
C11	0.001	189010-1	
C12	30 pF, 5%	89009-25	DM12
C13,C14,C15	0.1	189010-4	
C16	10, 35V	189719-9	Hilton SWT35Z10
C17,C18	0.01	189010-2	
C19	36 pF, 5%	89009-40	DM12
C20	120 pF, 5%	89009-41	DM12
C21	0.01	189010-2	
C22	430 pF, 5%	89009-73	DM12
C23	130 pF, 5%	89009-42	DM12
C24	10, 35V	189719A-9	Hilton SWT35Z10
C25	75 pF, 5%	89009-74	DM12
C26	22, 35V	189139-42	Hilton SWT35Z22
C27	100, 25V	189719-4	Hilton SWT25Z100
	DIODES		
CR1	MV1403	189440-78	
	TERMINALS		
E1,E2,E3	Pin	188500-29	Berg 75401
	CONNECTORS		
J1	Receptacle	188500-31	
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3,L4	3.5-8.5	189161-90	CB435-5
	TRANSISTORS		
Q1	2N3904	189700	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	300	189486	RC07GF301J
R2	5.6K	189226	RC07GF562J
R3	300	189486	RC07GF301J
R4	5.6K	189226	RC07GF562J
R5	Potentiometer, 5K	188453-32	
R6,R7	2.7K	189181	RC07GF272J
R8,R9	12K	189492	RC07GF123J
R10	4.99K, 1/8W, 1%	189256-93	RN55D4R99F
R11,R12	20K	189200-14	RC07GF203J
R13	2K	189488	RC07GF201J
R14,R15	220K	189238-33	RC07GF224J
R16	390, 1/2W, 5%	188026	RC20GF391J
R17	270	189485	RC07GF271J
R18	75	189280	RC07GF750J
R19	130	189200-17	RC07GF131J
R20	8.2K	189237	RC07GF822J
R21	3.9K	189224	RC07GF392J
R22	330	189205	RC07GF331J
R23	56	189232	RC07GF560J
R24	1.8K	188248	RC07GF182J
R25	Potentiometer, 5K	188453-32	
R26	332, 1/8W, 1%	189256-32	RN55D332RF
R27	8.2K	189237	RC07GF822J
R28	5.6K	189226	RC07GF562J
R29	30K	189481-25	RC07GF303J
R30	1K	189220	RC07GF101J
R31	3.16K, 1/8W, 1%	189325	RN55D3R16F
R32,R33	3K	189490	RC07GF301J
	INTEGRATED CIRCUITS		
U1	TL082CP	189889-85	
U2	MC1648L	189889-8	
U3	MC145106CP	189889-59	
U4	Voltage Regulator 78M12	189889-25	
	SHORTING PLUGS		
W1	Shorting Plug	188500-23	
	CRYSTALS		
Y1	17.4080	809745-5	MAC

TRANSMITTER AUXILIARY AUDIO PWB ASSSEMBLY (7.5 MHz/50 μs) 1840806-6

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	0.01	189010-2	
C2	10, 35V	189719-9	Hilton SWT35Z10
C3	0.01	189010-2	
C4,C5	10, 35V	189719-9	Hilton SWT35Z10
C6	0.01, 1%	188212-87	
C7	100, 25V	189719-4	Hilton SWT25Z10
C8	510 pF, 5%	89009-44	DM12
C9	22, 35V	189139-42	Hilton SWT35Z22
C10	0.1	189010-4	
C11	0.001	189010-1	
C12	39 pF, 5%	89009-51	DM12
C13,C14,C15	0.1	189010-4	
C16	10, 35V	189719-9	Hilton SWT35Z10
C17,C18	0.01	189010-2	
C19	36 pF, 5%	89009-40	DM12
C20	120 pF, 5%	89009-41	DM12
C21	0.01	189010-2	
C22	430 pF, 5%	89009-73	DM12
C23	130 pF, 5%	89009-42	DM12
C24	10, 35V	189719A-9	Hilton SWT35Z10
C25	75 pF, 5%	89009-74	DM12
C26	22, 35V	189139-42	Hilton SWT35Z22
C27	100, 25V	189719-4	Hilton SWT25Z100
	DIODES		
CR1	MV1403	189440-78	
	TERMINALS		
E1,E2,E3	Pin	188500-29	Berg 75401
	CONNECTORS		
J1	Receptacle	188500-31	
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3,L4	3.5-8.5	189161-90	CB435-5
	TRANSISTORS		
Q1	2N3904	189700	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	300	189486	RC07GF301J
R2	5.6K	189226	RC07GF562J
R3	300	189486	RC07GF301J
R4	5.6K	189226	RC07GF562J
R5	Potentiometer, 5K	188453-32	
R6,R7	2.7K	189181	RC07GF272J
R8,R9	12K	189492	RC07GF123J
R10	4.99K, 1/8W, 1%	189256-93	RN55D4R99F
R11,R12	20K	189200-14	RC07GF203J
R13	2K	189488	RC07GF201J
R14,R15	220K	189238-33	RC07GF224J
R16	390, 1/2W, 5%	188026	RC20GF391J
R17	270	189485	RC07GF271J
R18	75	189280	RC07GF750J
R19	130	189200-17	RC07GF131J
R20	8.2K	189237	RC07GF822J
R21	3.9K	189224	RC07GF392J
R22	330	189205	RC07GF331J
R23	56	189232	RC07GF560J
R24	1.8K	188248	RC07GF182J
R25	Potentiometer, 5K	188453-32	
R26	332, 1/8W, 1%	189256-32	RN55D332RF
R27	8.2K	189237	RC07GF822J
R28	5.6K	189226	RC07GF562J
R29	30K	189481-25	RC07GF303J
R30	1K	189220	RC07GF101J
R31	3.16K, 1/8W, 1%	189325	RN55D3R16F
R32,R33	3K	189490	RC07GF301J
	INTEGRATED CIRCUITS		
U1	TL082CP	189889-85	
U2	MC1648L	189889-8	
U3	MC145106CP	189889-59	
U4	Voltage Regulator 78M12	189889-25	
	SHORTING PLUGS		
W1	Shorting Plug	188500-23	
	CRYSTALS		
Y1	19.2000	809745-5	MAC

TRANSMITTER AUXILIARY AUDIO PWB ASSSEMBLY (4.83 MHz/75 μs) 1840806-7

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	0.01	189010-2	
C2	10, 35V	189719-9	Hilton SWT35Z10
C3	0.01	189010-2	
C4,C5	10, 35V	189719-9	Hilton SWT35Z10
C6	0.01, 1%	188212-87	
C7	100, 25V	189719-4	Hilton SWT25Z10
C8	510 pF, 5%	89009-44	DM12
C9	22, 35V	189139-42	Hilton SWT35Z22
C10	0.1	189010-4	
C11	0.001	189010-1	
C12	10 pF, 5%	89009-49	DM12
C13,C14,C15	0.1	189010-4	
C16	10, 35V	189719-9	Hilton SWT35Z10
C17,C18	0.01	189010-2	
C19	36 pF, 5%	89009-40	DM12
C20	120 pF, 5%	89009-41	DM12
C21	0.01	189010-2	
C22	430 pF, 5%	89009-73	DM12
C23	130 pF, 5%	89009-42	DM12
C24	10, 35V	189719A-9	Hilton SWT35Z10
C25	75 pF, 5%	89009-74	DM12
C26	22, 35V	189139-42	Hilton SWT35Z22
C27	100, 25V	189719-4	Hilton SWT25Z100
	DIODES		
CR1	MV1403	189440-78	
	TERMINALS		
E1,E2,E3	Pin	188500-29	Berg 75401
	CONNECTORS		
J1	Receptacle	188500-31	
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	17-35	189162-18	CB435-7
L4	3.5-8.5	189161-90	CB435-5
	TRANSISTORS		
Q1	2N3904	189700	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	300	189486	RC07GF301J
R2	5.6K	189226	RC07GF562J
R3	300	189486	RC07GF301J
R4	5.6K	189226	RC07GF562J
R5	Potentiometer, 5K	188453-32	
R6,R7	2.7K	189181	RC07GF272J
R8,R9	12K	189492	RC07GF123J
R10	7.68K, 1/8W, 1%	89327-96	RN55D7R68F
R11,R12	20K	189200-14	RC07GF203J
R13	2K	189488	RC07GF201J
R14,R15	220K	189238-33	RC07GF224J
R16	390, 1/2W, 5%	188026	RC20GF391J
R17	270	189485	RC07GF271J
R18	75	189280	RC07GF750J
R19	130	189200-17	RC07GF131J
R20	8.2K	189237	RC07GF822J
R21	3.9K	189224	RC07GF392J
R22	330	189205	RC07GF331J
R23	56	189232	RC07GF560J
R24	1.8K	188248	RC07GF182J
R25	Potentiometer, 5K	188453-32	
R26	332, 1/8W, 1%	189256-32	RN55D332RF
R27	8.2K	189237	RC07GF822J
R28	5.6K	189226	RC07GF562J
R29	30K	189481-25	RC07GF303J
R30	1K	189220	RC07GF101J
R31	3.48K, 1/8W, 1%	189327-91	RN55D3R48F
R32,R33	3K	189490	RC07GF301J
	INTEGRATED CIRCUITS		
U1	TL082CP	189889-85	
U2	MC1648L	189889-8	
U3	MC145106CP	189889-59	
U4	Voltage Regulator 78M12	189889-25	
	SHORTING PLUGS		
W1	Shorting Plug	188500-23	
	CRYSTALS		
Y1	12.3648	809745-1	MAC

TRANSMITTER AUXILIARY AUDIO PWB ASSSEMBLY (4.83 MHz/50 μs) 1840806-8

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	0.01	189010-2	
C2	10, 35V	189719-9	Hilton SWT35Z10
C3	0.01	189010-2	
C4,C5	10, 35V	189719-9	Hilton SWT35Z10
C6	0.01, 1%	188212-87	
C7	100, 25V	189719-4	Hilton SWT25Z10
C8	510 pF, 5%	89009-44	DM12
C9	22, 35V	189139-42	Hilton SWT35Z22
C10	0.1	189010-4	
C11	0.001	189010-1	
C12	10 pF, 5%	89009-49	DM12
C13,C14,C15	0.1	189010-4	
C16	10, 35V	189719-9	Hilton SWT35Z10
C17,C18	0.01	189010-2	
C19	36 pF, 5%	89009-40	DM12
C20	120 pF, 5%	89009-41	DM12
C21	0.01	189010-2	
C22	430 pF, 5%	89009-73	DM12
C23	130 pF, 5%	89009-42	DM12
C24	10, 35V	189719A-9	Hilton SWT35Z10
C25	75 pF, 5%	89009-74	DM12
C26	22, 35V	189139-42	Hilton SWT35Z22
C27	100, 25V	189719-4	Hilton SWT25Z100
	DIODES		
CR1	MV1403	189440-78	
	TERMINALS		
E1,E2,E3	Pin	188500-29	Berg 75401
	CONNECTORS		
J1	Receptacle	188500-31	
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	17-35	189162-18	CB435-7
L4	3.5-8.5	189161-90	CB435-5
	TRANSISTORS		
Q1	2N3904	189700	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	300	189486	RC07GF301J
R2	5.6K	189226	RC07GF562J
R3	300	189486	RC07GF301J
R4	5.6K	189226	RC07GF562J
R5	Potentiometer, 5K	188453-32	
R6,R7	2.7K	189181	RC07GF272J
R8,R9	12K	189492	RC07GF123J
R10	4.99K, 1/8W, 1%	189256-93	RN55D4R99F
R11,R12	20K	189200-14	RC07GF203J
R13	2K	189488	RC07GF201J
R14,R15	220K	189238-33	RC07GF224J
R16	390, 1/2W, 5%	188026	RC20GF391J
R17	270	189485	RC07GF271J
R18	75	189280	RC07GF750J
R19	130	189200-17	RC07GF131J
R20	8.2K	189237	RC07GF822J
R21	3.9K	189224	RC07GF392J
R22	330	189205	RC07GF331J
R23	56	189232	RC07GF560J
R24	1.8K	188248	RC07GF182J
R25	Potentiometer, 5K	188453-32	
R26	332, 1/8W, 1%	189256-32	RN55D332RF
R27	8.2K	189237	RC07GF822J
R28	5.6K	189226	RC07GF562J
R29	30K	189481-25	RC07GF303J
R30	1K	189220	RC07GF101J
R31	3.16K, 1/8W, 1%	189325	RN55D3R16F
R32,R33	3K	189490	RC07GF301J
	INTEGRATED CIRCUITS		
U1	TL082CP	189889-85	
U2	MC1648L	189889-8	
U3	MC145106CP	189889-59	
U4	Voltage Regulator 78M12	189889-25	
	SHORTING PLUGS		
W1	Shorting Plug	188500-23	
	CRYSTALS		
Y1	12.3648	809745-1	MAC

TRANSMITTER AUXILIARY AUDIO PWB ASSSEMBLY (7.02 MHz/75 μs) 1840806-9

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	0.01	189010-2	
C2	10, 35V	189719-9	Hilton SWT35Z10
C3	0.01	189010-2	
C4,C5	10, 35V	189719-9	Hilton SWT35Z10
C6	0.01, 1%	188212-87	
C7	100, 25V	189719-4	Hilton SWT25Z10
C8	510 pF, 5%	89009-44	DM12
C9	22, 35V	189139-42	Hilton SWT35Z22
C10	0.1	189010-4	
C11	0.001	189010-1	
C12	39 pF, 5%	89009-51	DM12
C13,C14,C15	0.1	189010-4	
C16	10, 35V	189719-9	Hilton SWT35Z10
C17,C18	0.01	189010-2	
C19	36 pF, 5%	89009-40	DM12
C20	120 pF, 5%	89009-41	DM12
C21	0.01	189010-2	
C22	430 pF, 5%	89009-73	DM12
C23	130 pF, 5%	89009-42	DM12
C24	10, 35V	189719A-9	Hilton SWT35Z10
C25	75 pF, 5%	89009-74	DM12
C26	22, 35V	189139-42	Hilton SWT35Z22
C27	100, 25V	189719-4	Hilton SWT25Z100
	DIODES		
CR1	MV1403	189440-78	
	TERMINALS		
E1,E2,E3	Pin	188500-29	Berg 75401
	CONNECTORS		
J1	Receptacle	188500-31	
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3,L4	3.5-8.5	189161-90	CB435-5
	TRANSISTORS		
Q1	2N3904	189700	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	300	189486	RC07GF301J
R2	5.6K	189226	RC07GF562J
R3	300	189486	RC07GF301J
R4	5.6K	189226	RC07GF562J
R5	Potentiometer, 5K	188453-32	
R6,R7	2.7K	189181	RC07GF272J
R8,R9	12K	189492	RC07GF123J
R10	7.68K, 1/8W, 1%	89327-96	RN55D7R68F
R11,R12	20K	189200-14	RC07GF203J
R13	2K	189488	RC07GF201J
R14,R15	220K	189238-33	RC07GF224J
R16	390, 1/2W, 5%	188026	RC20GF391J
R17	270	189485	RC07GF271J
R18	75	189280	RC07GF750J
R19	130	189200-17	RC07GF131J
R20	8.2K	189237	RC07GF822J
R21	3.9K	189224	RC07GF392J
R22	330	189205	RC07GF331J
R23	56	189232	RC07GF560J
R24	1.8K	188248	RC07GF182J
R25	Potentiometer, 5K	188453-32	
R26	332, 1/8W, 1%	189256-32	RN55D332RF
R27	8.2K	189237	RC07GF822J
R28	5.6K	189226	RC07GF562J
R29	30K	189481-25	RC07GF303J
R30	1K	189220	RC07GF101J
R31	3.48K, 1/8W, 1%	189327-91	RN55D3R48F
R32,R33	3K	189490	RC07GF301J
	INTEGRATED CIRCUITS		
U1	TL082CP	189889-85	
U2	MC1648L	189889-8	
U3	MC145106CP	189889-59	
U4	Voltage Regulator 78M12	189889-25	
	SHORTING PLUGS		
W1	Shorting Plug	188500-23	
	CRYSTALS		
Y1	17.9710	809745-9	MAC

TRANSMITTER AUXILIARY AUDIO PWB ASSSEMBLY (7.02 MHz/50 μs) 1840806-10

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	0.01	189010-2	
C2	10, 35V	189719-9	Hilton SWT35Z10
C3	0.01	189010-2	
C4,C5	10, 35V	189719-9	Hilton SWT35Z10
C6	0.01, 1%	188212-87	
C7	100, 25V	189719-4	Hilton SWT25Z10
C8	510 pF, 5%	89009-44	DM12
C9	22, 35V	189139-42	Hilton SWT35Z22
C10	0.1	189010-4	
C11	0.001	189010-1	
C12	39 pF, 5%	89009-51	DM12
C13,C14,C15	0.1	189010-4	
C16	10, 35V	189719-9	Hilton SWT35Z10
C17,C18	0.01	189010-2	
C19	36 pF, 5%	89009-40	DM12
C20	120 pF, 5%	89009-41	DM12
C21	0.01	189010-2	
C22	430 pF, 5%	89009-73	DM12
C23	130 pF, 5%	89009-42	DM12
C24	10, 35V	189719A-9	Hilton SWT35Z10
C25	75 pF, 5%	89009-74	DM12
C26	22, 35V	189139-42	Hilton SWT35Z22
C27	100, 25V	189719-4	Hilton SWT25Z100
	DIODES		
CR1	MV1403	189440-78	
	TERMINALS		
E1,E2,E3	Pin	188500-29	Berg 75401
	CONNECTORS		
J1	Receptacle	188500-31	
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3,L4	3.5-8.5	189161-90	CB435-5
	TRANSISTORS		
Q1	2N3904	189700	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	300	189486	RC07GF301J
R2	5.6K	189226	RC07GF562J
R3	300	189486	RC07GF301J
R4	5.6K	189226	RC07GF562J
R5	Potentiometer, 5K	188453-32	
R6,R7	2.7K	189181	RC07GF272J
R8,R9	12K	189492	RC07GF123J
R10	4.99K, 1/8W, 1%	189256-93	RN55D4R99F
R11,R12	20K	189200-14	RC07GF203J
R13	2K	189488	RC07GF201J
R14,R15	220K	189238-33	RC07GF224J
R16	390, 1/2W, 5%	188026	RC20GF391J
R17	270	189485	RC07GF271J
R18	75	189280	RC07GF750J
R19	130	189200-17	RC07GF131J
R20	8.2K	189237	RC07GF822J
R21	3.9K	189224	RC07GF392J
R22	330	189205	RC07GF331J
R23	56	189232	RC07GF560J
R24	1.8K	188248	RC07GF182J
R25	Potentiometer, 5K	188453-32	
R26	332, 1/8W, 1%	189256-32	RN55D332RF
R27	8.2K	189237	RC07GF822J
R28	5.6K	189226	RC07GF562J
R29	30K	189481-25	RC07GF303J
R30	1K	189220	RC07GF101J
R31	3.16K, 1/8W, 1%	189325	RN55D3R16F
R32,R33	3K	189490	RC07GF301J
	INTEGRATED CIRCUITS		
U1	TL082CP	189889-85	
U2	MC1648L	189889-8	
U3	MC145106CP	189889-59	
U4	Voltage Regulator 78M12	189889-25	
	SHORTING PLUGS		
W1	Shorting Plug	188500-23	
	CRYSTALS		
Y1	17.9710	809745-9	MAC

TRANSMITTER AUXILIARY AUDIO PWB ASSSEMBLY (8.065 MHz/75 μs) 1840806-11

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
CAPACITORS			
All capacitors are in microfarads unless otherwise specified.			
C1	0.01	189010-2	
C2	10, 35V	189719-9	Hilton SWT35Z10
C3	0.01	189010-2	
C4,C5	10, 35V	189719-9	Hilton SWT35Z10
C6	0.01, 1%	188212-87	
C7	100, 25V	189719-4	Hilton SWT25Z10
C8	510 pF, 5%	89009-44	DM12
C9	22, 35V	189139-42	Hilton SWT35Z22
C10	0.1	189010-4	
C11	0.001	189010-1	
C12	39 pF, 5%	89009-51	DM12
C13,C14,C15	0.1	189010-4	
C16	10, 35V	189719-9	Hilton SWT35Z10
C17,C18	0.01	189010-2	
C19	36 pF, 5%	89009-40	DM12
C20	120 pF, 5%	89009-41	DM12
C21	0.01	189010-2	
C22	430 pF, 5%	89009-73	DM12
C23	130 pF, 5%	89009-42	DM12
C24	10, 35V	189719A-9	Hilton SWT35Z10
C25	75 pF, 5%	89009-74	DM12
C26	22, 35V	189139-42	Hilton SWT35Z22
C27	100, 25V	189719-4	Hilton SWT25Z100
DIODES			
CR1	MV1403	189440-78	
TERMINALS			
E1,E2,E3	Pin	188500-29	Berg 75401
CONNECTORS			
J1	Receptacle	188500-31	
INDUCTORS			
All inductors are in microhenries unless otherwise specified.			
L3	3.5-8.5	189161-90	CB435-5
L4	1.7-3.9	189161-85	CB435-4
TRANSISTORS			
Q1	2N3904	189700	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	300	189486	RC07GF301J
R2	5.6K	189226	RC07GF562J
R3	300	189486	RC07GF301J
R4	5.6K	189226	RC07GF562J
R5	Potentiometer, 5K	188453-32	
R6,R7	2.7K	189181	RC07GF272J
R8,R9	12K	189492	RC07GF123J
R10	7.68K, 1/8W, 1%	89327-96	RN55D7R68F
R11,R12	20K	189200-14	RC07GF203J
R13	2K	189488	RC07GF201J
R14,R15	220K	189238-33	RC07GF224J
R16	390, 1/2W, 5%	188026	RC20GF391J
R17	270	189485	RC07GF271J
R18	75	189280	RC07GF750J
R19	130	189200-17	RC07GF131J
R20	8.2K	189237	RC07GF822J
R21	3.9K	189224	RC07GF392J
R22	330	189205	RC07GF331J
R23	56	189232	RC07GF560J
R24	1.8K	188248	RC07GF182J
R25	Potentiometer, 5K	188453-32	
R26	332, 1/8W, 1%	189256-32	RN55D332RF
R27	8.2K	189237	RC07GF822J
R28	5.6K	189226	RC07GF562J
R29	30K	189481-25	RC07GF303J
R30	1K	189220	RC07GF101J
R31	3.48K, 1/8W, 1%	189327-91	RN55D3R48F
R32,R33	3K	189490	RC07GF301J
	INTEGRATED CIRCUITS		
U1	TL082CP	189889-85	
U2	MC1648L	189889-8	
U3	MC145106CP	189889-59	
U4	Voltage Regulator 78M12	189889-25	
	SHORTING PLUGS		
W1	Shorting Plug	188500-23	
	CRYSTALS		
Y1	20.6500	809745-6	MAC

TRANSMITTER AUXILIARY AUDIO PWB ASSSEMBLY (8.065 MHz/50 μs) 1840806-12

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	0.01	189010-2	
C2	10, 35V	189719-9	Hilton SWT35Z10
C3	0.01	189010-2	
C4,C5	10, 35V	189719-9	Hilton SWT35Z10
C6	0.01, 1%	188212-87	
C7	100, 25V	189719-4	Hilton SWT25Z10
C8	510 pF, 5%	89009-44	DM12
C9	22, 35V	189139-42	Hilton SWT35Z22
C10	0.1	189010-4	
C11	0.001	189010-1	
C12	39 pF, 5%	89009-51	DM12
C13,C14,C15	0.1	189010-4	
C16	10, 35V	189719-9	Hilton SWT35Z10
C17,C18	0.01	189010-2	
C19	36 pF, 5%	89009-40	DM12
C20	120 pF, 5%	89009-41	DM12
C21	0.01	189010-2	
C22	430 pF, 5%	89009-73	DM12
C23	130 pF, 5%	89009-42	DM12
C24	10, 35V	189719A-9	Hilton SWT35Z10
C25	75 pF, 5%	89009-74	DM12
C26	22, 35V	189139-42	Hilton SWT35Z22
C27	100, 25V	189719-4	Hilton SWT25Z100
	DIODES		
CR1	MV1403	189440-78	
	TERMINALS		
E1,E2,E3	Pin	188500-29	Berg 75401
	CONNECTORS		
J1	Receptacle	188500-31	
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	3.5-8.5	189161-90	CB435-5
L4	1.7-3.9	189161-85	CB435-4
	TRANSISTORS		
Q1	2N3904	189700	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	300	189486	RC07GF301J
R2	5.6K	189226	RC07GF562J
R3	300	189486	RC07GF301J
R4	5.6K	189226	RC07GF562J
R5	Potentiometer, 5K	188453-32	
R6,R7	2.7K	189181	RC07GF272J
R8,R9	12K	189492	RC07GF123J
R10	4.99K, 1/8W, 1%	189256-93	RN55D4R99F
R11,R12	20K	189200-14	RC07GF203J
R13	2K	189488	RC07GF201J
R14,R15	220K	189238-33	RC07GF224J
R16	390, 1/2W, 5%	188026	RC20GF391J
R17	270	189485	RC07GF271J
R18	75	189280	RC07GF750J
R19	130	189200-17	RC07GF131J
R20	8.2K	189237	RC07GF822J
R21	3.9K	189224	RC07GF392J
R22	330	189205	RC07GF331J
R23	56	189232	RC07GF560J
R24	1.8K	188248	RC07GF182J
R25	Potentiometer, 5K	188453-32	
R26	332, 1/8W, 1%	189256-32	RN55D332RF
R27	8.2K	189237	RC07GF822J
R28	5.6K	189226	RC07GF562J
R29	30K	189481-25	RC07GF303J
R30	1K	189220	RC07GF101J
R31	3.16K, 1/8W, 1%	189325	RN55D3R16F
R32,R33	3K	189490	RC07GF301J
	INTEGRATED CIRCUITS		
U1	TL082CP	189889-85	
U2	MC1648L	189889-8	
U3	MC145106CP	189889-59	
U4	Voltage Regulator 78M12	189889-25	
	SHORTING PLUGS		
W1	Shorting Plug	188500-23	
	CRYSTALS		
Y1	20.6500	809745-6	MAC

TRANSMITTER AUXILIARY AUDIO PWB ASSSEMBLY (7.5 MHz/50 μs) 1840806-14

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	0.01	189010-2	
C2	10, 35V	189719-9	Hilton SWT35Z10
C3	0.01	189010-2	
C4,C5	10, 35V	189719-9	Hilton SWT35Z10
C6	0.01, 1%	188212-87	
C7	100, 25V	189719-4	Hilton SWT25Z10
C8	510 pF, 5%	89009-44	DM12
C9	22, 35V	189139-42	Hilton SWT35Z22
C10	0.1	189010-4	
C11	0.001	189010-1	
C12	39 pF, 5%	89009-51	DM12
C13,C14,C15	0.1	189010-4	
C16	10, 35V	189719-9	Hilton SWT35Z10
C17,C18	0.01	189010-2	
C19	36 pF, 5%	89009-40	DM12
C20	120 pF, 5%	89009-41	DM12
C21	0.01	189010-2	
C22	430 pF, 5%	89009-73	DM12
C23	130 pF, 5%	89009-42	DM12
C24	10, 35V	189719A-9	Hilton SWT35Z10
C25	75 pF, 5%	89009-74	DM12
C26	22, 35V	189139-42	Hilton SWT35Z22
C27	100, 25V	189719-4	Hilton SWT25Z100
	DIODES		
CR1	MV1403	189440-78	
	TERMINALS		
E1,E2,E3	Pin	188500-29	Berg 75401
	CONNECTORS		
J1	Receptacle	188500-31	
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	3.5-8.5	189161-90	CB435-5
L4	1.7-3.9	189161-85	CB435-4
	TRANSISTORS		
Q1	2N3904	189700	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	300	189486	RC07GF301J
R2	5.6K	189226	RC07GF562J
R3	300	189486	RC07GF301J
R4	5.6K	189226	RC07GF562J
R5	Potentiometer, 5K	188453-32	
R6,R7	2.7K	189181	RC07GF272J
R8,R9	12K	189492	RC07GF123J
R10	4.99K, 1/8W, 1%	189256-93	RN55D4R99F
R11,R12	20K	189200-14	RC07GF203J
R13	2K	189488	RC07GF201J
R14,R15	220K	189238-33	RC07GF224J
R16	390, 1/2W, 5%	188026	RC20GF391J
R17	270	189485	RC07GF271J
R18	75	189280	RC07GF750J
R19	130	189200-17	RC07GF131J
R20	8.2K	189237	RC07GF822J
R21	3.9K	189224	RC07GF392J
R22	330	189205	RC07GF331J
R23	56	189232	RC07GF560J
R24	1.8K	188248	RC07GF182J
R25	Potentiometer, 5K	188453-32	
R26	332, 1/8W, 1%	189256-32	RN55D332RF
R27	8.2K	189237	RC07GF822J
R28	5.6K	189226	RC07GF562J
R29	30K	189481-25	RC07GF303J
R30	1K	189220	RC07GF101J
R31	3.16K, 1/8W, 1%	189325	RN55D3R16F
R32,R33	3K	189490	RC07GF301J
	INTEGRATED CIRCUITS		
U1	TL082CP	189889-85	
U2	MC1648L	189889-8	
U3	MC145106CP	189889-59	
U4	Voltage Regulator 78M12	189889-25	
	SHORTING PLUGS		
W1	Shorting Plug	188500-23	
	CRYSTALS		
Y1	21.9904	809745-11	MAC

TRANSMITTER AUXILIARY AUDIO PWB ASSSEMBLY (5.8 MHz/75 μs) 1840806-15

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	0.01	189010-2	
C2	10, 35V	189719-9	Hilton SWT35Z10
C3	0.01	189010-2	
C4,C5	10, 35V	189719-9	Hilton SWT35Z10
C6	0.01, 1%	188212-87	
C7	100, 25V	189719-4	Hilton SWT25Z10
C8	510 pF, 5%	89009-44	DM12
C9	22, 35V	189139-42	Hilton SWT35Z22
C10	0.1	189010-4	
C11	0.001	189010-1	
C12	22 pF, 5%	89009-30	DM12
C13,C14,C15	0.1	189010-4	
C16	10, 35V	189719-9	Hilton SWT35Z10
C17,C18	0.01	189010-2	
C19	36 pF, 5%	89009-40	DM12
C20	120 pF, 5%	89009-41	DM12
C21	0.01	189010-2	
C22	430 pF, 5%	89009-73	DM12
C23	130 pF, 5%	89009-42	DM12
C24	10, 35V	189719A-9	Hilton SWT35Z10
C25	75 pF, 5%	89009-74	DM12
C26	22, 35V	189139-42	Hilton SWT35Z22
C27	100, 25V	189719-4	Hilton SWT25Z100
	DIODES		
CR1	MV1403	189440-78	
	TERMINALS		
E1,E2,E3	Pin	188500-29	Berg 75401
	CONNECTORS		
J1	Receptacle	188500-31	
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	7.5-17.0	189161-86	CB435-6
L4	3.5-8.5	189161-90	CB435-5
	TRANSISTORS		
Q1	2N3904	189700	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	300	189486	RC07GF301J
R2	5.6K	189226	RC07GF562J
R3	300	189486	RC07GF301J
R4	5.6K	189226	RC07GF562J
R5	Potentiometer, 5K	188453-32	
R6,R7	2.7K	189181	RC07GF272J
R8,R9	12K	189492	RC07GF123J
R10	7.68K, 1/8W, 1%	89327-96	RN55D7R68F
R11,R12	20K	189200-14	RC07GF203J
R13	2K	189488	RC07GF201J
R14,R15	220K	189238-33	RC07GF224J
R16	390, 1/2W, 5%	188026	RC20GF391J
R17	270	189485	RC07GF271J
R18	75	189280	RC07GF750J
R19	130	189200-17	RC07GF131J
R20	8.2K	189237	RC07GF822J
R21	3.9K	189224	RC07GF392J
R22	330	189205	RC07GF331J
R23	56	189232	RC07GF560J
R24	1.8K	188248	RC07GF182J
R25	Potentiometer, 5K	188453-32	
R26	332, 1/8W, 1%	189256-32	RN55D332RF
R27	8.2K	189237	RC07GF822J
R28	5.6K	189226	RC07GF562J
R29	30K	189481-25	RC07GF303J
R30	1K	189220	RC07GF101J
R31	3.48K, 1/8W, 1%	189327-91	RN55D3R48F
R32,R33	3K	189490	RC07GF301J
	INTEGRATED CIRCUITS		
U1	TL082CP	189889-85	
U2	MC1648L	189889-8	
U3	MC145106CP	189889-59	
U4	Voltage Regulator 78M12	189889-25	
	SHORTING PLUGS		
W1	Shorting Plug	188500-23	
	CRYSTALS		
Y1	14.8480	809745-2	MAC

TRANSMITTER AUXILIARY AUDIO PWB ASSSEMBLY (5.8 MHz/50 μs) 1840806-16

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	0.01	189010-2	
C2	10, 35V	189719-9	Hilton SWT35Z10
C3	0.01	189010-2	
C4,C5	10, 35V	189719-9	Hilton SWT35Z10
C6	0.01, 1%	188212-87	
C7	100, 25V	189719-4	Hilton SWT25Z10
C8	510 pF, 5%	89009-44	DM12
C9	22, 35V	189139-42	Hilton SWT35Z22
C10	0.1	189010-4	
C11	0.001	189010-1	
C12	22 pF, 5%	89009-30	DM12
C13,C14,C15	0.1	189010-4	
C16	10, 35V	189719-9	Hilton SWT35Z10
C17,C18	0.01	189010-2	
C19	36 pF, 5%	89009-40	DM12
C20	120 pF, 5%	89009-41	DM12
C21	0.01	189010-2	
C22	430 pF, 5%	89009-73	DM12
C23	130 pF, 5%	89009-42	DM12
C24	10, 35V	189719A-9	Hilton SWT35Z10
C25	75 pF, 5%	89009-74	DM12
C26	22, 35V	189139-42	Hilton SWT35Z22
C27	100, 25V	189719-4	Hilton SWT25Z100
	DIODES		
CR1	MV1403	189440-78	
	TERMINALS		
E1,E2,E3	Pin	188500-29	Berg 75401
	CONNECTORS		
J1	Receptacle	188500-31	
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	7.5-17.0	189161-86	CB435-6
L4	3.5-8.5	189161-90	CB435-5
	TRANSISTORS		
Q1	2N3904	189700	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	300	189486	RC07GF301J
R2	5.6K	189226	RC07GF562J
R3	300	189486	RC07GF301J
R4	5.6K	189226	RC07GF562J
R5	Potentiometer, 5K	188453-32	
R6,R7	2.7K	189181	RC07GF272J
R8,R9	12K	189492	RC07GF123J
R10	4.99K, 1/8W, 1%	189256-93	RN55D4R99F
R11,R12	20K	189200-14	RC07GF203J
R13	2K	189488	RC07GF201J
R14,R15	220K	189238-33	RC07GF224J
R16	390, 1/2W, 5%	188026	RC20GF391J
R17	270	189485	RC07GF271J
R18	75	189280	RC07GF750J
R19	130	189200-17	RC07GF131J
R20	8.2K	189237	RC07GF822J
R21	3.9K	189224	RC07GF392J
R22	330	189205	RC07GF331J
R23	56	189232	RC07GF560J
R24	1.8K	188248	RC07GF182J
R25	Potentiometer, 5K	188453-32	
R26	332, 1/8W, 1%	189256-32	RN55D332RF
R27	8.2K	189237	RC07GF822J
R28	5.6K	189226	RC07GF562J
R29	30K	189481-25	RC07GF303J
R30	1K	189220	RC07GF101J
R31	3.16K, 1/8W, 1%	189325	RN55D3R16F
R32,R33	3K	189490	RC07GF301J
	INTEGRATED CIRCUITS		
U1	TL082CP	189889-85	
U2	MC1648L	189889-8	
U3	MC145106CP	189889-59	
U4	Voltage Regulator 78M12	189889-25	
	SHORTING PLUGS		
W1	Shorting Plug	188500-23	
	CRYSTALS		
Y1	14.8480	809745-2	MAC

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
METER ASSEMBLY PN 1841749-1			
	Meter	1841470-1	MAC
	Polarizing Key	189396-81	
J5	Connector, 5 Position, IDT	189396-91	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
TRANSMITTER POWER SUPPLY ASSEMBLY PN 1841570-4			
	Power Supply PWB Assembly	1841554-4	MAC
	Transformer	845103-1	MAC
	Bracket	1841571-1	MAC
	Connector, Filtered, AC Line	90025-1	MAC
CR1,CR3	Bridge Rectifier, BR-66	189439-40	
Q2	Transistor, MJE-6044	189888-51	
	Lug, Solder	88520-28	
	Fuses		
	1A Slo-Blo	188200-7	
	0.5A Slo-Blo (Optional)	188200-27	
	Heatsink	842117-1	MAC
	Heatsink Without Slot	842117-2	MAC
	ID Label	1842069-1	

TRANSMITTER POWER SUPPLY PWB ASSEMBLY PN 1841554-4

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2,C3	4700, 35V	189719-56	
C4	10, 35V	189719-9	Hilton SWT35Z10
C5	560 pF	89009-45	DM12
C6	10 pF	89009-49	DM12
C7,C8	10, 35V	189719-9	Hilton SWT35Z10
C9	0.01	189010-2	
C10	10, 35V	189719-9	Hilton SWT35Z10
	DIODES		
CR2	Rectifier Bridge BR-66	189439-40	
CR4	1N4148	189405	
CR5	1N823, Zener	189437	
CR6	1N4148	189405	
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7,E8,E9, E10,E11,E12,E13,E14,E15, E16,E17,E18	Bifurcated	184844-33	
	FUSES		
F1,F2	3A, 125V, AGX-3	88200-30	
F3	2.5A, 125V, AGX-2½	88200-31	
	CONNECTORS		
J1	Pin	188500-29	Berg 75401
	TRANSISTORS		
Q1	2N2905	189728-12	
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	820	189207	RC07GF821J
R2	Potentiometer, 200	188453-74	Helitrim
R3	1K	189220	RC07GF101J
R4	48.7K, 1/8W, 1%	189327-25	RN55D48R7F
R5	15K, 1/8W, 1%	189327-92	RN55D15R0F
R6	48.7K, 1/8W, 1%	189327-25	RN55D48R7F
R7	84.5K, 1/8W, 1%	189327-94	RN55D84R5F
R8	100K, 1/8W, 1%	189330	RN55D1004RF
R9	3.9K	189224	RC07GF392J
R10	300	189486	RC07GF301J
R11	39	189480	RC07GF390J
R12	5.6K	189226	RC07GF562J
R13	100	189202	RC07GF101J

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
R14,R15	2K, 1/8W, 1%	189327-82	RN55D2001RF
R16	Potentiometer, 500	188453-36	Helitrim
R17	3K, 1/8W, 1%	88514-59	RN55D3001RF
R18	750	189487	RC07GF751J
R19	10K	189227	RC07GF103J
R20	75K	189200-8	RC07GF753J
R21	240	189200-4	RC07GF241J
R22	2.4K	189489	RC07GF242J
R23	4.7K	189225	RC07GF472J
	INTEGRATED CIRCUITS		
U1	TL084IJ	189976-96	
U2	μA79M06AUC	189889-5	
	JUMPERS		
W2,W3	White #18 AWG	88198-11	

VIDEO LOW PASS FILTER PWB ASSEMBLY PN 1841778-1

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	180 pF, 1%	189008-82	CM05ED181J03
C2	100 pF, 1%	189008-80	CM05ED101J03
C3	62 pF, 1%	189008-71	CM05ED620J03
C4	82 pF, 1%	189008-72	CM05ED820J03
C5	270 pF, 1%	189008-5	CM05ED271J03
C6	330 pF, 1%	189018-6	CM05ED331J03
C7	470 pF, 1%	189008-29	CM05ED471J03
C8	47 pF, 1%	189008-79	CM05ED470J03
C9,C10	100 pF, 1%	189008-80	CM05ED101J03
C11	510 pF, 1%	189018-7	CM05ED511J03
C12	680 pF, 1%	189018-8	CM05ED681J03
	TERMINALS		
E1,E2,E3,E4	Bifurcated	184844-33	
	CONNECTORS		
J1	Socket	188500-31	Berg
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L1	Inductor	189161-46	Cambion 558-7106-12
L2	Inductor	189161-31	Cambion 558-7106-11
L3	Toroid	1809322-2	MACS
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	620	189200-10	RC07GF621J

REF DES	DESCRIPTION	QTY	
TRANSMITTER CONTROL ACCESSORY KIT PN 842456-3			
	Power Cord	88305-52	1
	Fuse		
	1A Slo-Blo	88200-7	2
	2A AGC	88200-2	2

SECTION 6
RECEIVER CONTROL UNIT
DIAGRAMS/PARTS LISTS

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NOTE:

1. Meter Assembly PN 1841749-1 – See Section 5, Figure 5-4
2. Video Low Pass Filter PN 1841778-1 – See Section 5, Figure 5-7
3. Power Supply Interconnect Wiring Harness See Section 5, Figure 5-8

LIST OF PARTS LISTS

1. Receiver Assembly
PN 1841550-1 (525 Line/110V) 6-20
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PN 1841550-4 (Wideband) 6-23
2. Receiver Video Demodulator PWB Assembly
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3. Receiver Audio Demodulator PWB Assembly
PN 1841576-1 (6.2 MHz/75 µs) 6-39
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PN 1841576-3 (7.5 MHz/75 µs) 6-43
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PN 1841576-9 (7.02 MHz/75 µs) 6-55
PN 1841576-10 (7.02 MHz/50 µs) 6-57
PN 1841576-11 (8.065 MHz/75 µs) 6-59
PN 1841576-12 (8.065 MHz/50 µs) 6-61
PN 1841576-14 (7.5 MHz/50 µs) 6-63
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4. Receiver Power Supply Assembly
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5. Receiver Power Supply PWB Assembly
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6. IF Filter-Equalizer PWB Assembly
PN 844433-1 6-71
8. Receiver Control Accessory Kit
PN 842456-1 6-73

NOTE:

1. Meter Assembly PN 1841749-1 – See Section 5
2. Video Low Pass Filter PN 1841778– See Section 5
3. Power Supply Interconnect Wiring Harness PN 1841574-1 – See Section 5

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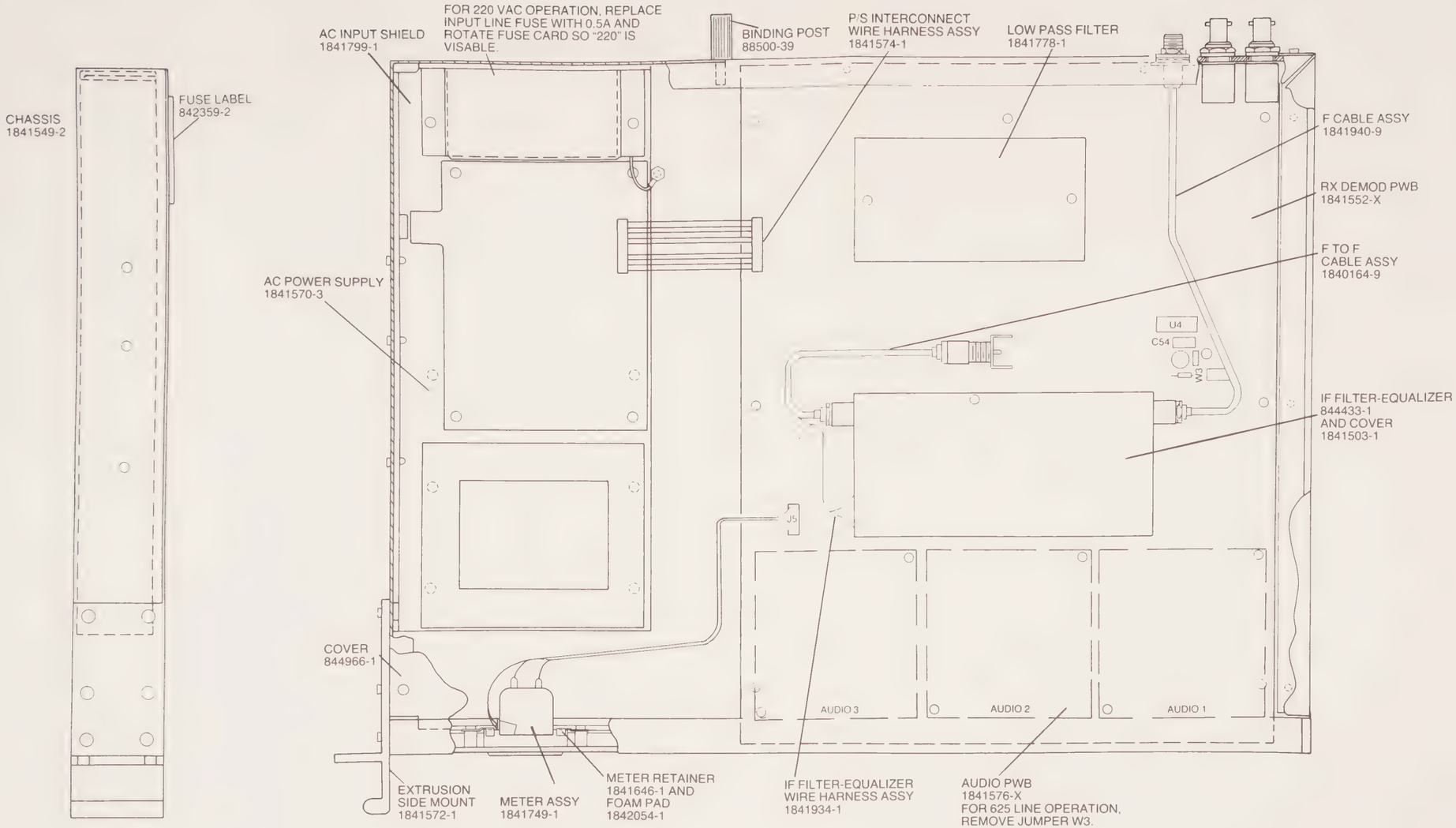


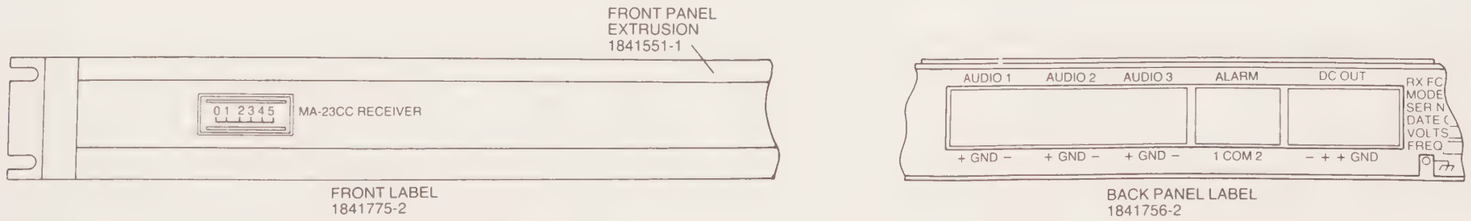


Figure 6-1. Receiver Assembly PN 1841550

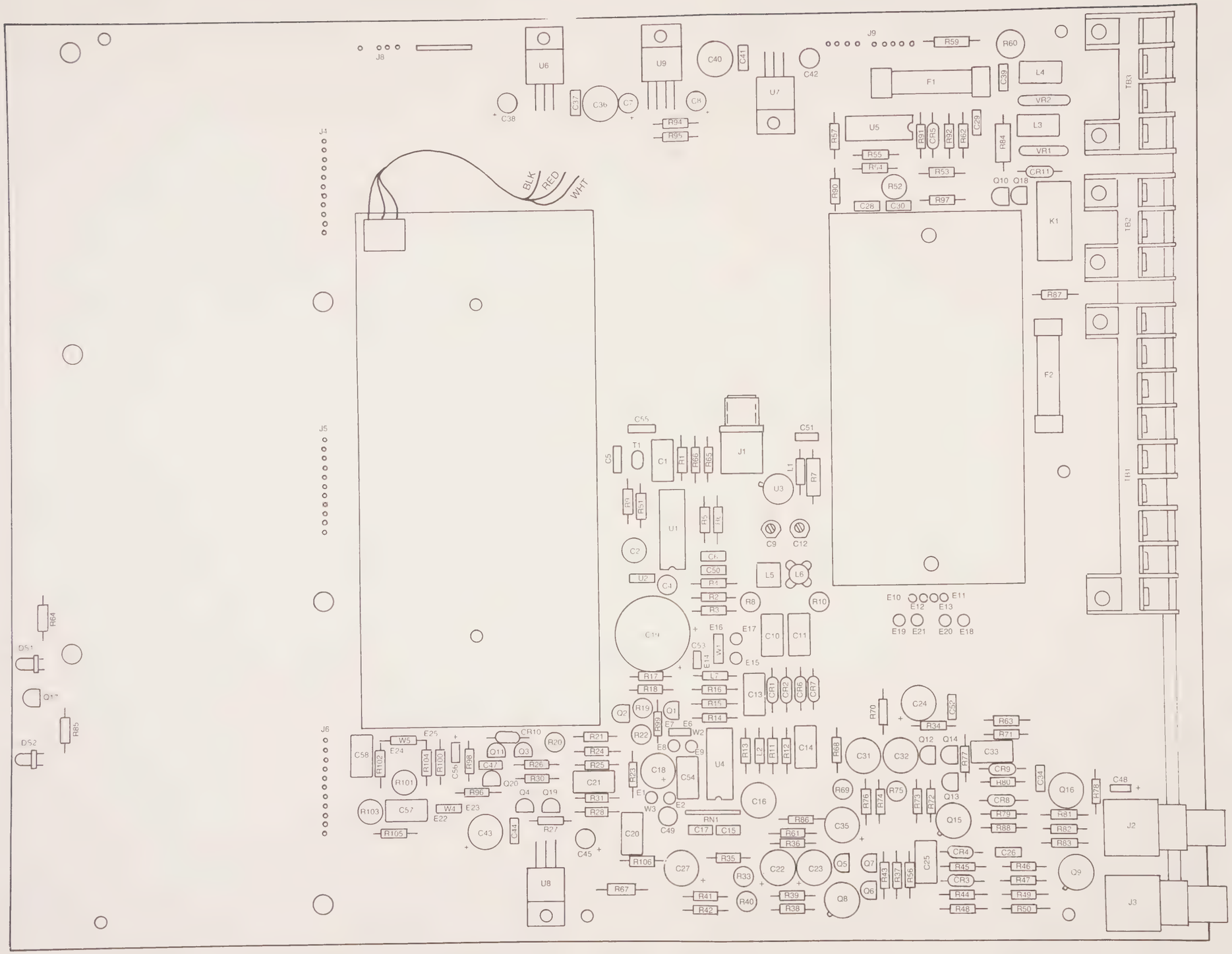


Figure 6-2. Receiver Demodulator PN 1841552 – Component Location/ Schematic Diagram (Sheet 1 of 3)

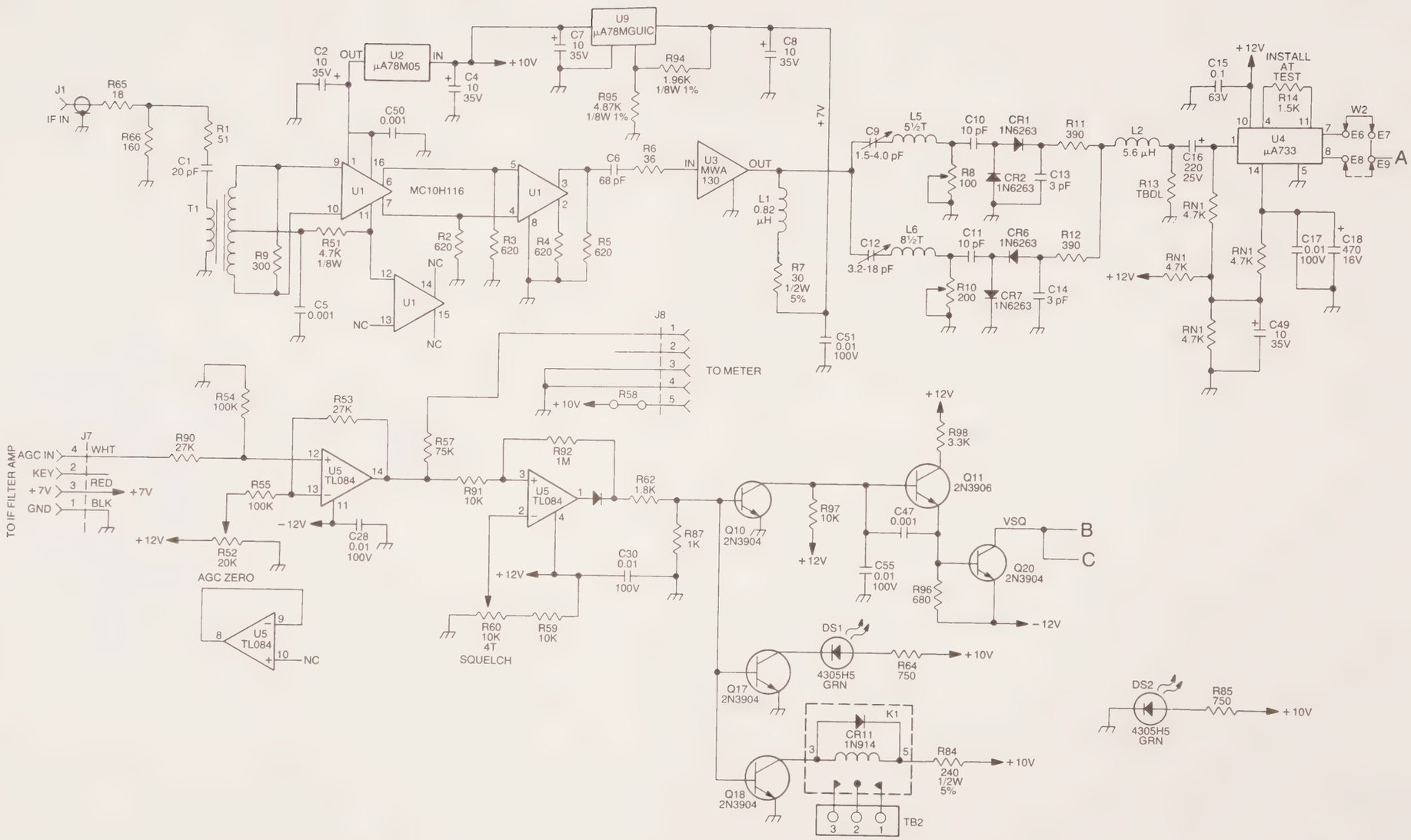


Figure 6-2. Receiver Demodulator PN 1841552 – Component Location/ Schematic Diagram (Sheet 2 of 3)

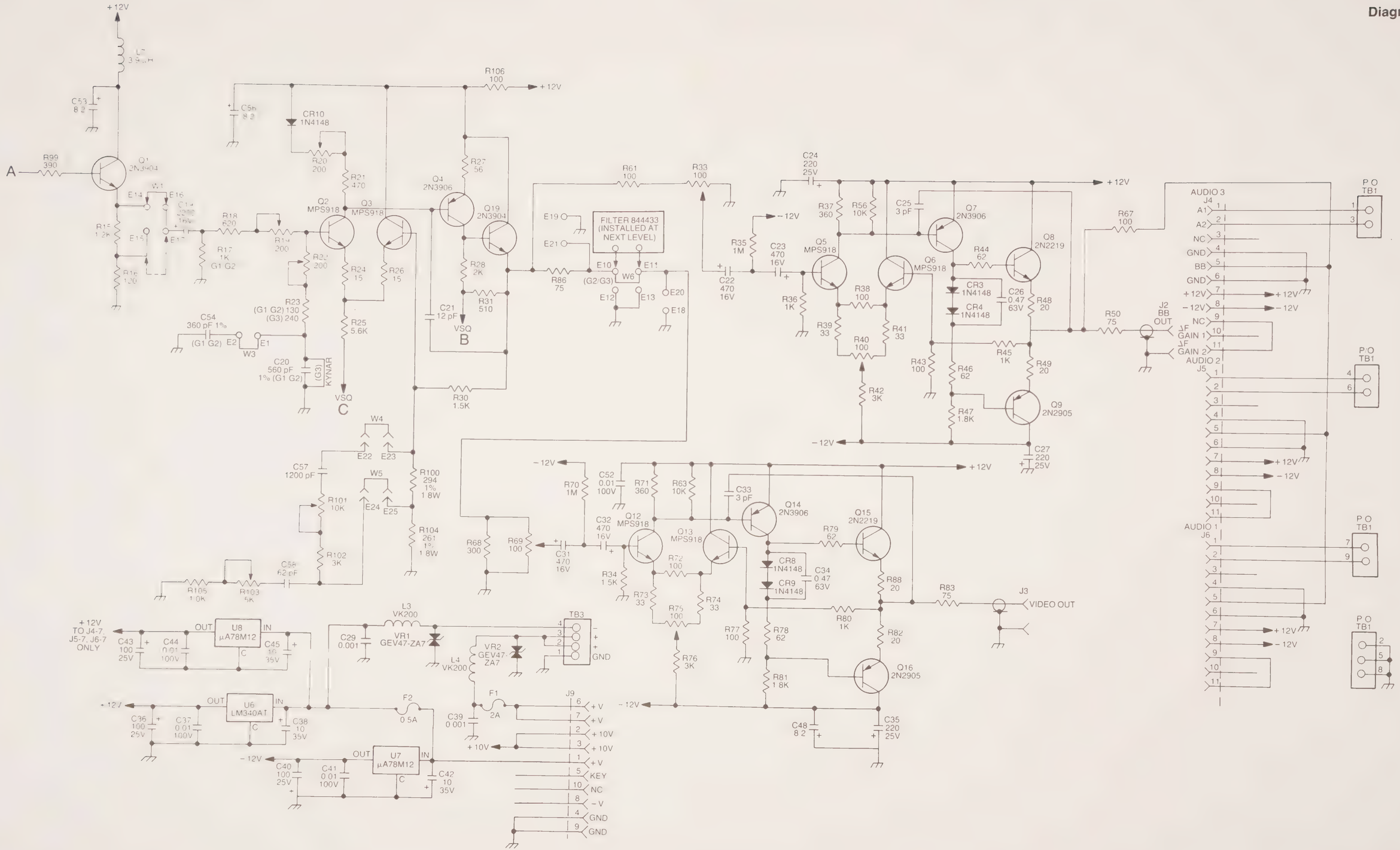


Figure 6-2. Receiver Demodulator PN 1841552 – Component Location/ Schematic Diagram (Sheet 3 of 3)

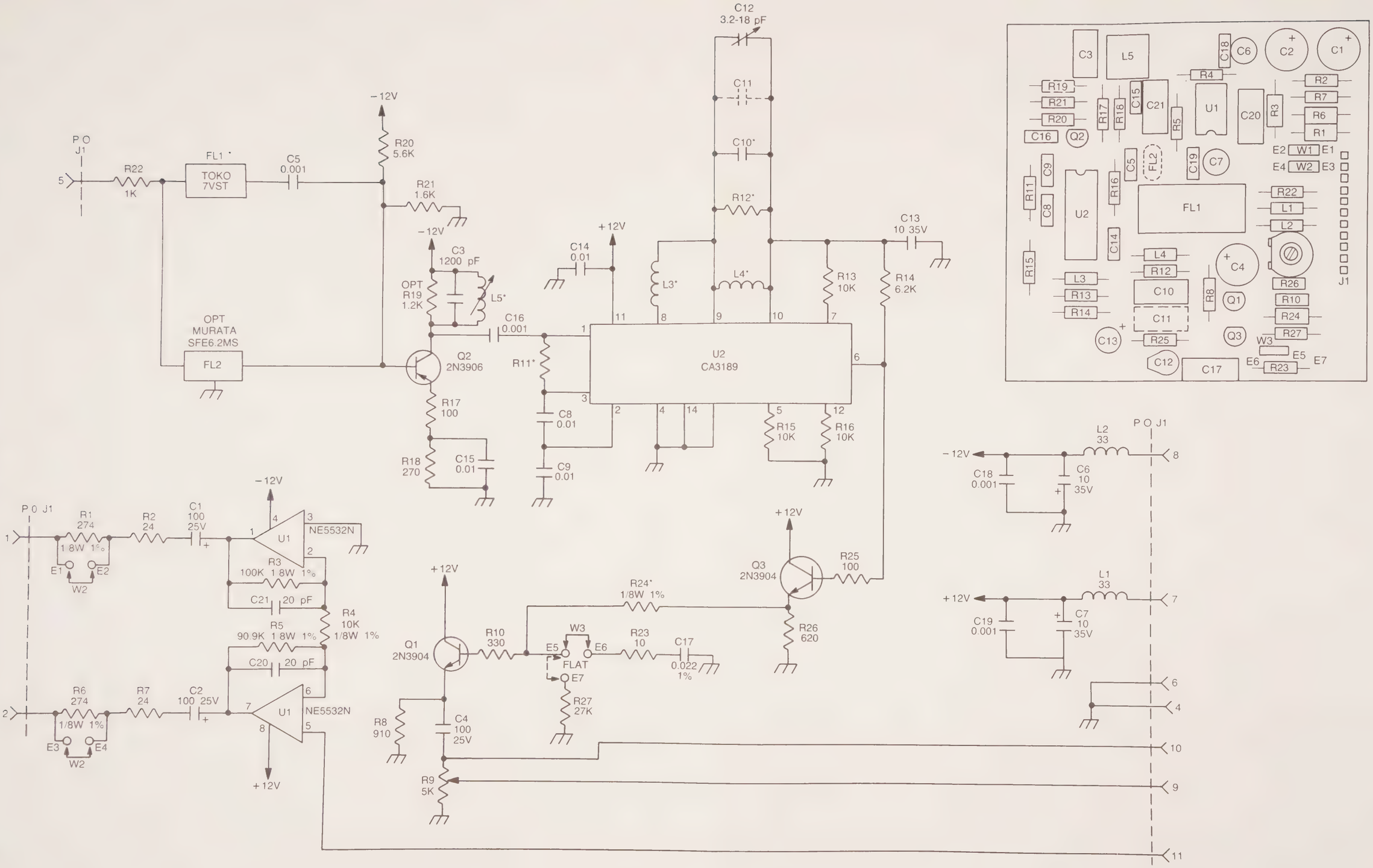


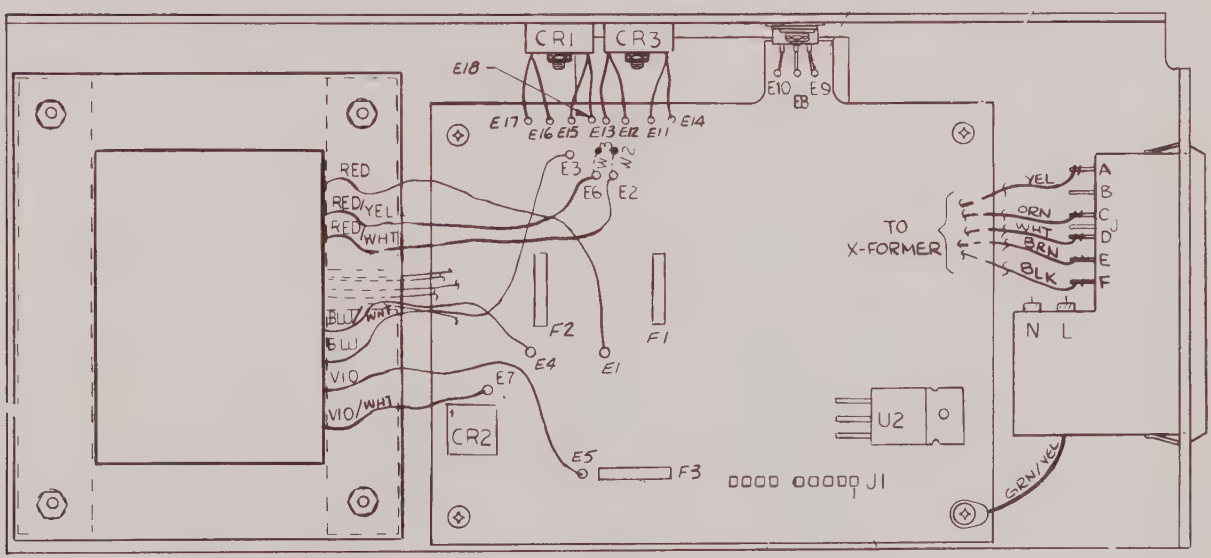
Figure 6-3. Audio Subcarrier Receiver
PN 1841576 – Component Location/
Schematic Diagram

J1 Pin Functions

Pin #	Function
1	Not Used
2	GND
3	−16V Unreg
4	+20V Unreg
5	+20V Unreg
6	KEY
7	GND
8	+10V Unreg
9	+10V Unreg
10	+20V Unreg

Wiring List

LINE	FROM	TO	COLOR
1	XFMR 10V	PWA-E3	BLU
2	XFMR 0V	PWA-E4	BLU/WHT
3	XFMR 16V	PWA-E5	VIO
4	XFMR 0V	PWA-E7	VIO/WHT
5	XFMR 18V	PWA-E6	RED/YEL
6	XFMR 17V	PWA-E2	RED/WHT
7	XFMR 0V	PWA-E1	RED
8	XFMR 0V	FILTER F	BLK
9	XFMR 120V	FILTER D	WHT
10	XFMR 100V	FILTER A	YEL
11	XFMR 120V	FILTER C	ORN
12	XFMR 0V	FILTER E	BRN
15	FILTER B	FILTER L	BLK
16	FILTER J	FILTER N	WHT
17	FILTER GND	GND	GRN/YEL
18	CR1 −	E16	N/A
19	CR1 +	E18	N/A
20	CR1 AC	E17	N/A
21	CR1 AC	E15	N/A
22	CR3 −	E12	N/A
23	CR3 +	E14	N/A
24	CR3 AC	E13	N/A
25	CR3 AC	E11	N/A



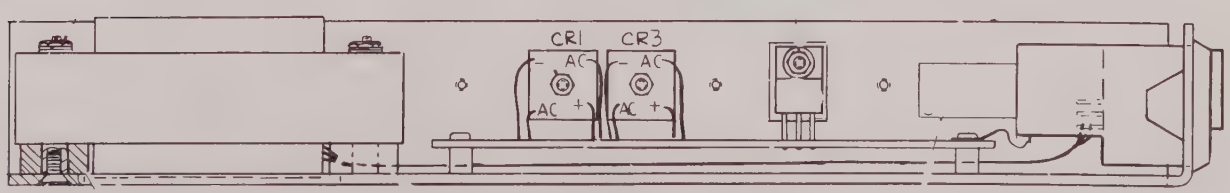
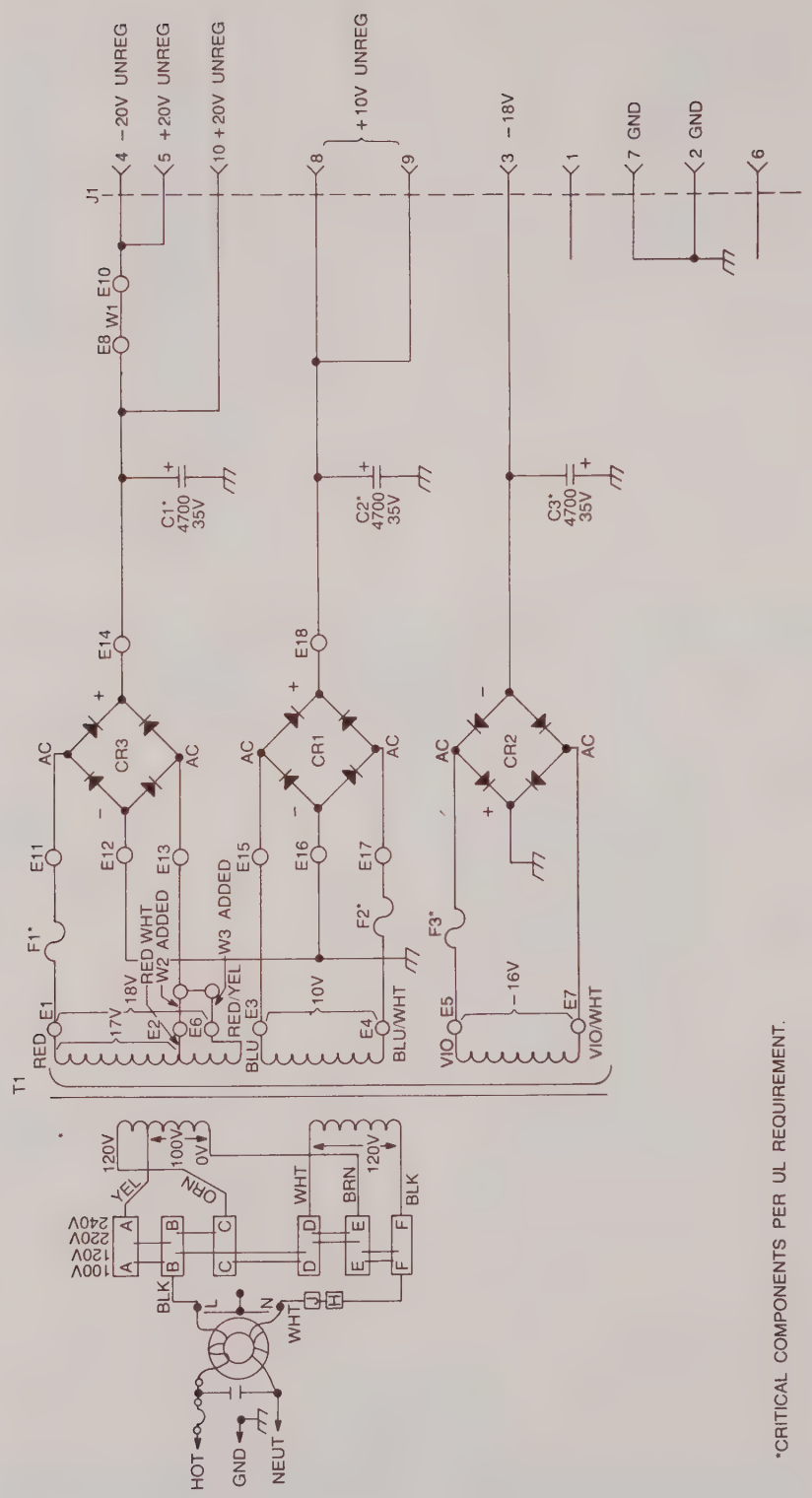


Figure 6-4. Power Supply PN 1841570-3 – Assembly Wiring/Schematic Diagram (Sheet 1 of 2)



*CRITICAL COMPONENTS PER UL REQUIREMENT.

Figure 6-4. Power Supply PN 1841570-3 – Assembly Wiring/Schematic Diagram (Sheet 2 of 2)

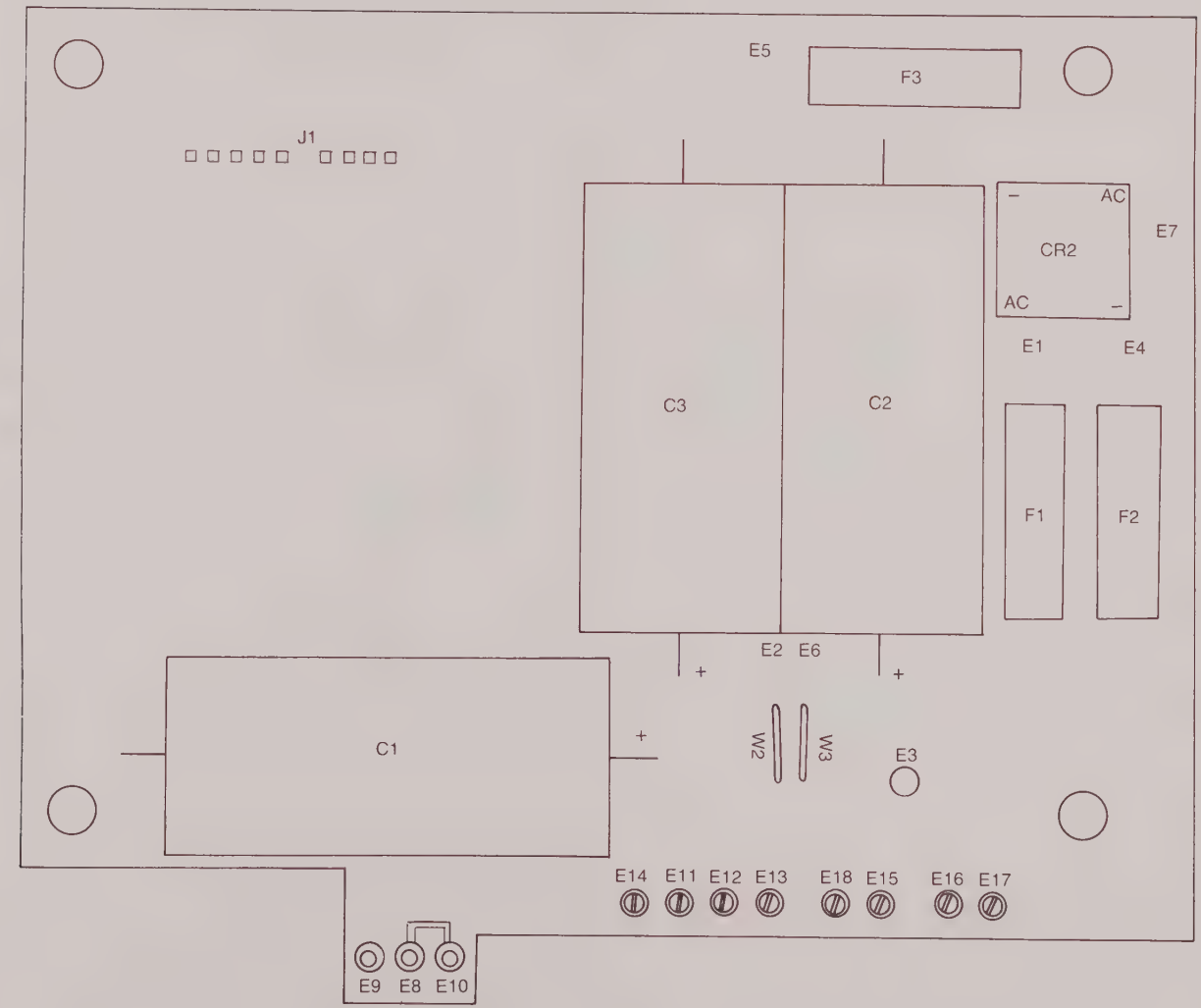


Figure 6-5. Power Supply PN 1841554-3 – Component Location

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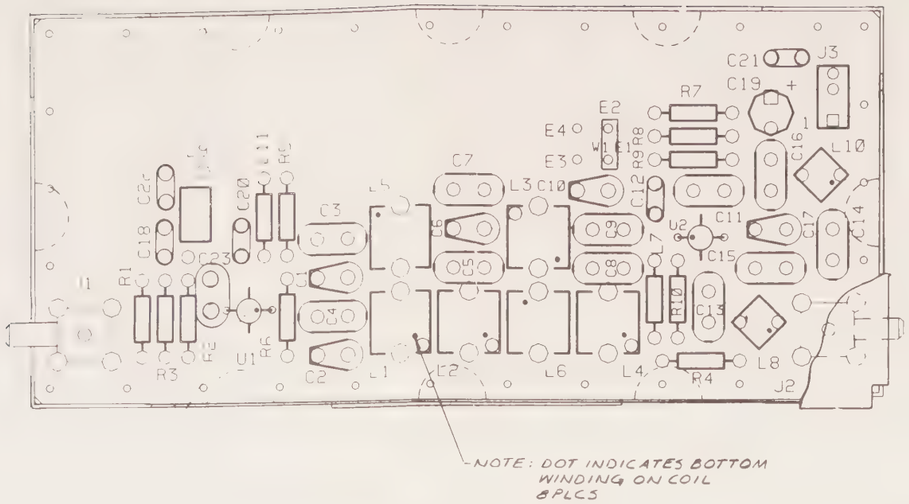

Figure 6-6. IF Filter-Equalizer PN 844433-1 – Component Location/Schematic Diagram

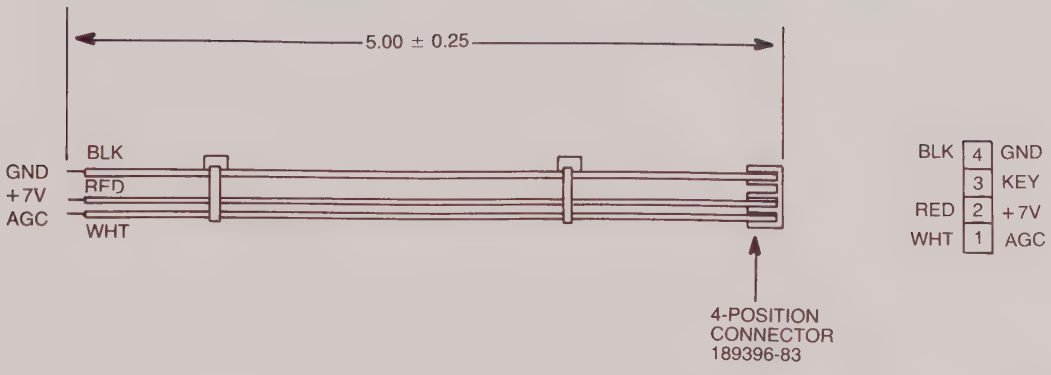

Figure 6-7. IF Filter-Equalizer Wiring Harness PN 1841934-1

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RECEIVER ASSEMBLY (525 LINE/110V) PN 1841550-1			
	Chassis	1841549-2	MAC
	IF Filter Equalizer PWB Assembly	844433-1	MAC
	Receiver Demodulator PWB Assembly	1841552-1	MAC
	Receiver Audio PWB Assembly	1841576-99	MAC
	Video Low Pass Filter	1841778-1	MAC
	Meter Assembly	1841749-1	MAC
	Power Supply Assembly	1841570-3	MAC
	Wire Harness Assembly (P/S Interconnect)	1841574-1	MAC
	Cable Assembly		
	F to F	1840164-7	MAC
	F	1841940-9	MAC
	Foam Pad	1842054-1	MAC
	AC Input Shield	1841799-1	MAC
	Meter Retainer	1841646-1	MAC
	Extrusion		
	Front Panel	1841551-1	MAC
	Side Mount	1841572-1	MAC
	Top Cover	844496-1	MAC
	Labels		
	Front Panel	1841775-2	MAC
	Back Panel	1841776-2	MAC
	Fuse	842359-2	MAC
	Binding Post	88500-39	
	Accessory Kit	842456-1	MAC

RECEIVER ASSEMBLY (625 LINE/220V) PN 1841550-2

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	Chassis	1841549-2	MAC
	IF Filter Equalizer PWB Assembly	844433-1	MAC
	Receiver Demodulator PWB Assembly	1841552-1	MAC
	Receiver Audio PWB Assembly	1841576-99	MAC
	Video Low Pass Filter	1841778-1	MAC
	Meter Assembly	1841749-1	MAC
	Power Supply Assembly	1841570-3	MAC
	Wire Harness Assembly (P/S Interconnect)	1841574-1	MAC
	Cable Assembly		
	F to F	1840164-7	MAC
	F	1841940-9	MAC
	Foam Pad	1842054-1	MAC
	AC Input Shield	1841799-1	MAC
	Meter Retainer	1841646-1	MAC
	Extrusion		
	Front Panel	1841551-1	MAC
	Side Mount	1841572-1	MAC
	Covers		
	Top	844966-1	MAC
	IF Filter Equalizer	1841803-1	MAC
	Fuse, 0.5A Slo-Blo	188200-27	
	Labels		
	Front Panel	1841775-2	MAC
	Back Panel	1841776-2	MAC
	Fuse	842359-2	MAC
	Binding Post	88500-39	

RECEIVER ASSEMBLY (1000 LINE) PN 1841550-3

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	Chassis	1841549-2	MAC
	IF Filter Equalizer PWB Assembly	844433-1	MAC
	Receiver Demodulator PWB Assembly	1841552-2	MAC
	Receiver Audio PWB Assembly	1841576-99	MAC
	Video Low Pass Filter	1841778-1	MAC
	Meter Assembly	1841749-1	MAC
	Power Supply Assembly	1841570-3	MAC
	Wire Harness Assembly (P/S Interconnect)	1841574-1	MAC
	Cable Assembly		
	F to F	1840164-7	MAC
	F	1841940-9	MAC
	Foam Pad	1842054-1	MAC
	AC Input Shield	1841799-1	MAC
	Meter Retainer	1841646-1	MAC
	Extrusion		
	Front Panel	1841551-1	MAC
	Side Mount	1841572-1	MAC
	Covers		
	Top	844966-1	MAC
	IF Filter Equalizer	1841803-1	MAC
	Fuse, 0.5A Slo-Blo	188200-27	
	Labels		
	Front Panel	1841775-2	MAC
	Back Panel	1841776-2	MAC
	Fuse	842359-2	MAC
	Binding Post	88500-39	

RECEIVER ASSEMBLY (WIDEBAND) PN 1841550-4

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	Chassis	1841549-2	MAC
	IF Filter Equalizer PWB Assembly	844433-1	MAC
	Receiver Demodulator PWB Assembly	1841552-3	MAC
	Receiver Audio PWB Assembly	1841576-99	MAC
	Video Low Pass Filter	1841778-1	MAC
	Meter Assembly	1841749-1	MAC
	Power Supply Assembly	1841570-3	MAC
	Wire Harness Assembly (P/S Interconnect)	1841574-1	MAC
	Cable Assembly		
	F to F	1840164-7	MAC
	F	1841940-9	MAC
	Foam Pad	1842054-1	MAC
	AC Input Shield	1841799-1	MAC
	Meter Retainer	1841646-1	MAC
	Extrusion		
	Front Panel	1841551-1	MAC
	Side Mount	1841572-1	MAC
	Covers		
	Top	844966-1	MAC
	IF Filter Equalizer	1841803-1	MAC
	Fuse, 0.5A Slo-Blo	188200-27	
	Labels		
	Front Panel	1841775-2	MAC
	Back Panel	1841776-2	MAC
	Fuse	842359-2	MAC
	Binding Post	88500-39	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RECEIVER VIDEO DEMODULATOR PWB ASSEMBLY (525/625 LINE) PN 1841552-1			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	20 pF, 5%	89009-28	DM12
C2,C4	10, 35V	189719-9	Hilton SWT35Z10
C5	0.001	89007-53	
C6	68 pF, 5%	89009-54	DM12
C7,C8	10, 35V	189719-9	Hilton SWT35Z10
C9	Variable, 1.5-4.0 pF	189100-29	Black Dot
C10,C11	10 pF, 5%	89009-49	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13,C14	3 pF, 5%	89009-36	DM12
C15	0.1, 63V	189010-4	
C16	220, 25V	189719-75	Hilton SWT25Z220
C17	0.01, 100V	189010-2	
C18	470, 16V	189018-26	
C19	2200, 16V	189018-25	
C20	560 pF, 1%	89009-77	DM12
C21	12 pF ± 0.5 pF	89009-37	
C22,C23	470, 16V	189018-26	
C24	220, 25V	189719-75	Hilton SWT25Z220
C25	3 pF, 5%	89009-36	DM12
C26	0.47, 63V	189010-9	
C27	220, 25V	189719-75	Hilton SWT25Z220
C28	0.01, 100V	189010-2	
C29	0.001	189010-1	
C30	0.01, 100V	189010-2	
C31,C32	470, 16V	189018-26	
C33	3 pF, 5%	89009-36	DM12
C34	0.47, 63V	189010-9	
C35	220, 25V	189719-75	Hilton SWT25Z220
C36	100, 25V	189719-4	Hilton SWT25Z100
C37	0.01, 100V	189010-2	
C38	10, 35V	189719-9	Hilton SWT35Z10
C39	0.001	189010-1	
C40	100, 25V	189719-4	Hilton SWT25Z100
C41	0.01, 100V	189010-2	
C42	10, 35V	189719-9	Hilton SWT35Z10
C43	100, 25V	189719-4	Hilton SWT25Z100
C44	0.01, 100V	189010-2	
C45	10, 35V	189719-9	Hilton SWT35Z10
C47	0.001	189010-1	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
C48	8.2	189765	Kemet
C49	10, 35V	189719-9	Hilton SWT35Z10
C50	0.001	89009-53	DM12
C51,C52	0.01, 100V	189010-2	
C53	8.2	189765	Kemet
C54	360 pF, 1%	89009-76	
C55	0.01, 100V	189010A-2	
C56	8.2	89009-61	DM12
C57	1200 pF	89009-62	DM12
C58	62 pF	189008-71	CM05ED620J03
	DIODES		
CR1,CR2	1N6263	189440-86	
CR3,CR4,CR5	1N4148	189405	
CR6,CR7	1N6263	189440-86	
CR8,CR9,CR10,CR11	1N4148	189405	
	LEDS		
DS1,DS2	Green, Right Angle, PC Mount	89904-45	
	TERMINALS		
E1,E2,E6,E7,E8,E9,E10,E11, E12,E13,E14,E15,E16,E17	Pin	188500-29	Berg 75401
E18,E19,E20,E21	Bifurcated	184844-33	
E22,E23,E24,E25	Pin	188500-29	Berg 75401
	FUSES		
F1	2A	188200-2	
F2	0.5A	188203	
	CONNECTORS		
J1	Right Angle F	189397-5	
J2,J3	Right Angle BNC	188357-48	
J4,J5,J6	Pin	188500-29	Berg 75401
	RELAYS		
K1	Relay	189800-28	Aromat RSD-5V
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L1	0.82	189169-6	Delevan 1025-18
L2	5.6	189169-83	Delevan 1025-38
L3,L4	Inductor	189169-37	Ferroxcube VK200-10/3B

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
L5	5-1/2T, Shielded	189162-56	Coilcraft T7-150 (GRN)
L6	8-1/2T, Unshielded	189162-55	Coilcraft T7-147(GRAY)
L7	3.9	189169-82	Delevan 1025-34
	TRANSISTORS		
Q1	2N3904	189700	Motorola
Q2,Q3	MPS918	189774	
Q4	2N3906	189727	Motorola
Q5,Q6	MPS918	189774	
Q7	2N3906	189727	Motorola
Q8	2N2219	187223-21	
Q9	2N2905	189728-12	
Q10	2N3904	189700	Motorola
Q11	2N3906	189727	Motorola
Q12,Q13	MPS918	189774	
Q14	2N3906	189727	Motorola
Q15	2N2219	187223-21	
Q16	2N2905	189728-12	
Q17,Q18,Q19,Q20	2N3904	189700	Motorola
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	51	189238-38	RC07GF510J
R2,R3,R4,R5	620	89200-10	RC07GF621J
R6	36	189479	RC07GF360J
R7	30, 1/2W, 5%	188541-57	RC20GF300J
R8	Potentiometer, 100	88453-33	Helitrim
R9	300	189486	RC07GF301J
R10	Potentiometer, 200	188453-74	Heilitrim
R11,R12	390	189180	RC07GF391J
R13	To Be Determined Later		
R14	1.5K	189236	RC07GF152J
R15	1.2K	189221	RC07GF122J
R16	120	189203	RC07GF121J
R17	1K	189220	RC07GF101J
R18	620	89200-10	RC07GF621J
R19,R20	Potentiometer, 200	188453-74	Heilitrim
R21	470	189234	RC07GF471J
R22	Potentiometer, 200	188453-74	Heilitrim
R23	130	189200-17	RC07GF131J
R24	15	189239	RC07GF150J
R25	5.6K	189226	RC07GF562J
R26	15	189239	RC07GF150J
R27	56	189232	RC07GF560J
R28	2K	189488	RC07GF201J

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
R30	1.5K	189236	RC07GF152J
R31	510	89481-19	RC07GF511J
R33	Potentiometer, 100	88453-33	Helitrim
R34	1K	189220	RC07GF101J
R35	1M	189238-30	RC07GF105J
R36	1K	189220	RC07GF101J
R37	360	189200-11	RC07GF361J
R38	100	89202	RC07GF101J
R39	33	189478	RC07GF330J
R40	Potentiometer, 100	88453-33	Helitrim
R41	33	189478	RC07GF330J
R42	3K	189490	RC07GF301J
R43	100	89202	RC07GF101J
R44	62	189481-18	RC07GF620J
R45	1K	189220	RC07GF101J
R46	62	189481-18	RC07GF620J
R47	1.8K	188248	RC07GF182J
R48,R49	20	189477	RC07GF200J
R50	75	89280	RC07GF750J
R51	4.7K, 1/8W, 1%	89262-51	
R52	Potentiometer, 20K	188453-24	Helitrim
R53	27K	188078	RC07GF273J
R54,R55	100K	189278	RC07GF104J
R56	Thermistor, 10K	89735-3	
R57	75K	189200-8	RC07GF753J
R58	Bus Wire No. 22 AWG	188300-22	
R59	10K	189227	
R60	Potentiometer, 10K, 4 Turn	188453-73	
R61	100	89202	RC07GF101J
R62	1.8K	188248	RC07GF182J
R63	Thermistor, 10K	89735-3	
R64	750	189487	RC07GF751J
R65	18	189476	RC07GF180J
R66	160	189200-13	RC07GF161J
R67	100	89202	RC07GF101J
R68	300	189486	RC07GF301J
R69	Potentiometer, 100	88453-33	Helitrim
R70	1M	189200-11	RC07GF105J
R71	360	189200-11	RC07GF361J
R72	100	89202	RC07GF101J
R73,R74	33	189478	RC07GF330J
R75	Potentiometer, 100	8845	Helitrim
R76	3K	189490	RC07GF301J
R77	100	89202	RC07GF101J
R78,R79	62	189481-18	RC07GF620J
R80	1K	189220	RC07GF101J
R81	1.8K	188248	RC07GF182J
R82	20	189477	RC07GF200J

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
R83	75	89280	RC07GF750J
R84	240, 1/2W 5%	189575-7	RC20GF241J
R85	750	189487	RC07GF751J
R86	75	89280	RC07GF750J
R87	1K	189220	RC07GF101J
R88	20	189477	RC07GF200J
R90	27K	188078	RC07GF273J
R91	10K	189227	RC07GF103J
R92	1M	189238-30	RC07GF105J
R94	1.96K, 1/8W, 1%	189327-69	RN55D1R96F
R95	4.87K, 1/8W, 1%	189256-85	RN55D4R87F
R96	680	189206	RC07GF681J
R97	10K	189227	RC07GF103J
R98	3.3K	189223	RC07GF332J
R99	390	189180	RC07GF391J
R100	294, 1/8W, 1%	89327-34	RN55D294RF
R101	Potentiometer, 10K	88453-31	Helitrim
R102	3K	89256-86	RC07GF301J
R103	Potentiometer, 5K	88453-32	Helitrim
R104	261, 1/8W, 1%	89327-47	RN55D261RF
R105	1K	189220	RC07GF101J
R106	100	89202	RC07GF101J
	RESISTOR NETWORKS		
RN1	4.7K, 8 Pin	188540-31	
	TRANSFORMERS		
T1	5T	1842016-1	MAC
	TERMINAL BLOCKS		
TB1	9 Position	189892-26	
TB2	3 Position	189892-24	
TB3	4 Position	189892-25	
	INTEGRATED CIRCUITS		
U1	MC10H116	189975-25	
U2	µA78M05	189976-94	
U3	MWA130	189889-72	
U4	µA733DC	189889-76	
U5	TL084IJ	189976-96	
U6	LM340AT	189889-90	
U7	µA79M12	189976-92	
U8	µA78M12	189889-25	
U9	µA78MGU1C	189889-82	
	VARISTORS		
VR1,VR2	GEV47-ZA7	189195-1	
	SHORTING PLUGS		
W1,W2,W3,W4,W5	Shorting Plug	188500-23	

RECEIVER VIDEO DEMODULATOR PWB ASSEMBLY (1000 LINE) PN 1841552-2

CAPACITORS

All capacitors are in microfarads unless otherwise specified.

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
C1	20 pF, 5%	89009-28	DM12
C2,C4	10, 35V	189719-9	Hilton SWT35Z10
C5	0.001	89007-53	
C6	68 pF, 5%	89009-54	DM12
C7,C8	10, 35V	189719-9	Hilton SWT35Z10
C9	Variable, 1.5-4.0 pF	189100-29	Black Dot
C10,C11	10 pF, 5%	89009-49	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13,C14	3 pF, 5%	89009-36	DM12
C15	0.1, 63V	189010-4	
C16	220, 25V	189719-75	Hilton SWT25Z220
C17	0.01, 100V	189010-2	
C18	470, 16V	189018-26	
C19	2200, 16V	189018-25	
C20	560 pF, 1%	89009-77	DM12
C21	12 pF ± 0.5 pF	89009-37	
C22,C23	470, 16V	189018-26	
C24	220, 25V	189719-75	Hilton SWT25Z220
C25	3 pF, 5%	89009-36	DM12
C26	0.47, 63V	189010-9	
C27	220, 25V	189719-75	Hilton SWT25Z220
C28	0.01, 100V	189010-2	
C29	0.001	189010-1	
C30	0.01, 100V	189010-2	
C31,C32	470, 16V	189018-26	
C33	3 pF, 5%	89009-36	DM12
C34	0.47, 63V	189010-9	
C35	220, 25V	189719-75	Hilton SWT25Z220
C36	100, 25V	189719-4	Hilton SWT25Z100
C37	0.01, 100V	189010-2	
C38	10, 35V	189719-9	Hilton SWT35Z10
C39	0.001	189010-1	
C40	100, 25V	189719-4	Hilton SWT25Z100
C41	0.01, 100V	189010-2	
C42	10, 35V	189719-9	Hilton SWT35Z10
C43	100, 25V	189719-4	Hilton SWT25Z100
C44	0.01, 100V	189010-2	
C45	10, 35V	189719-9	Hilton SWT35Z10
C47	0.001	189010-1	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
C48	8.2	189765	Kemet
C49	10, 35V	189719-9	Hilton SWT35Z10
C50	0.001	89009-53	DM12
C51,C52	0.01, 100V	189010-2	
C53	8.2	189765	Kemet
C54	360 pF, 1%	89009-76	
C55	0.01, 100V	189010A-2	
C56	8.2	89009-61	DM12
C57	1200 pF	89009-62	DM12
C58	62 pF	189008-71	CM05ED620J03
	DIODES		
CR1,CR2	1N6263	189440-86	
CR3,CR4,CR5	1N4148	189405	
CR6,CR7	1N6263	189440-86	
CR8,CR9,CR10,CR11	1N4148	189405	
	LEDS		
DS1,DS2	Green, Right Angle, PC Mount	89904-45	
	TERMINALS		
E1,E2,E6,E7,E8,E9,E10,E11, E12,E13,E14,E15,E16,E17	Pin	188500-29	Berg 75401
E18,E19,E20,E21	Bifurcated	184844-33	
E22,E23,E24,E25	Pin	188500-29	Berg 75401
	FUSES		
F1	2A	188200-2	
F2	0.5A	188203	
	CONNECTORS		
J1	Right Angle F	189397-5	
J2,J3	Right Angle BNC	188357-48	
J4,J5,J6	Pin	188500-29	Berg 75401
	RELAYS		
K1	Relay	189800-28	Aromat RSD-5V
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L1	0.82	189169-6	Delevan 1025-18
L2	5.6	189169-83	Delevan 1025-38
L3,L4	Inductor	189169-37	Ferroxcube VK200-10/3B

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
L5	5-1/2T, Shielded	189162-56	Coilcraft T7-150 (GRN)
L6	8-1/2T, Unshielded	189162-55	Coilcraft T7-147(GRAY)
L7	3.9	189169-82	Delevan 1025-34
	TRANSISTORS		
Q1	2N3904	189700	Motorola
Q2,Q3	MPS918	189774	
Q4	2N3906	189727	Motorola
Q5,Q6	MPS918	189774	
Q7	2N3906	189727	Motorola
Q8	2N2219	187223-21	
Q9	2N2905	189728-12	
Q10	2N3904	189700	Motorola
Q11	2N3906	189727	Motorola
Q12,Q13	MPS918	189774	
Q14	2N3906	189727	Motorola
Q15	2N2219	187223-21	
Q16	2N2905	189728-12	
Q17,Q18,Q19,Q20	2N3904	189700	Motorola
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	51	189238-38	RC07GF510J
R2,R3,R4,R5	620	89200-10	RC07GF621J
R6	36	189479	RC07GF360J
R7	30, 1/2W, 5%	188541-57	RC20GF300J
R8	Potentiometer, 100	88453-33	Helitrim
R9	300	189486	RC07GF301J
R10	Potentiometer, 200	188453-74	Heilitrim
R11,R12	390	189180	RC07GF391J
R13	To Be Determined Later		
R14	1.5K	189236	RC07GF152J
R15	1.2K	189221	RC07GF122J
R16	120	189203	RC07GF121J
R17	1K	189220	RC07GF101J
R18	620	89200-10	RC07GF621J
R19,R20	Potentiometer, 200	188453-74	Heilitrim
R21	470	189234	RC07GF471J
R22	Potentiometer, 200	188453-74	Heilitrim
R23	130	189200-17	RC07GF131J
R24	15	189239	RC07GF150J
R25	5.6K	189226	RC07GF562J
R26	15	189239	RC07GF150J
R27	56	189232	RC07GF560J
R28	2K	189488	RC07GF201J

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
R30	1.5K	189236	RC07GF152J
R31	510	89481-19	RC07GF511J
R33	Potentiometer, 100	88453-33	Helitrim
R34	1K	189220	RC07GF101J
R35	1M	189238-30	RC07GF105J
R36	1K	189220	RC07GF101J
R37	360	189200-11	RC07GF361J
R38	100	89202	RC07GF101J
R39	33	189478	RC07GF330J
R40	Potentiometer, 100	88453-33	Helitrim
R41	33	189478	RC07GF330J
R42	3K	189490	RC07GF301J
R43	100	89202	RC07GF101J
R44	62	189481-18	RC07GF620J
R45	1K	189220	RC07GF101J
R46	62	189481-18	RC07GF620J
R47	1.8K	188248	RC07GF182J
R48,R49	20	189477	RC07GF200J
R50	75	89280	RC07GF750J
R51	4.7K, 1/8W, 1%	89262-51	
R52	Potentiometer, 20K	188453-24	Helitrim
R53	27K	188078	RC07GF273J
R54,R55	100K	189278	RC07GF104J
R56	Thermistor, 10K	89735-3	
R57	75K	189200-8	RC07GF753J
R58	Bus Wire No. 22 AWG	188300-22	
R59	10K	189227	
R60	Potentiometer, 10K, 4 Turn	188453-73	
R61	100	89202	RC07GF101J
R62	1.8K	188248	RC07GF182J
R63	Thermistor, 10K	89735-3	
R64	750	189487	RC07GF751J
R65	18	189476	RC07GF180J
R66	160	189200-13	RC07GF161J
R67	100	89202	RC07GF101J
R68	300	189486	RC07GF301J
R69	Potentiometer, 100	88453-33	Helitrim
R70	1M	189200-11	RC07GF105J
R71	360	189200-11	RC07GF361J
R72	100	89202	RC07GF101J
R73,R74	33	189478	RC07GF330J
R75	Potentiometer, 100	8845	Helitrim
R76	3K	189490	RC07GF301J
R77	100	89202	RC07GF101J
R78,R79	62	189481-18	RC07GF620J
R80	1K	189220	RC07GF101J
R81	1.8K	188248	RC07GF182J
R82	20	189477	RC07GF200J

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
R83	75	89280	RC07GF750J
R84	240, 1/2W 5%	189575-7	RC20GF241J
R85	750	189487	RC07GF751J
R86	75	89280	RC07GF750J
R87	1K	189220	RC07GF101J
R88	20	189477	RC07GF200J
R90	27K	188078	RC07GF273J
R91	10K	189227	RC07GF103J
R92	1M	189238-30	RC07GF105J
R94	1.96K, 1/8W, 1%	189327-69	RN55D1R96F
R95	4.87K, 1/8W, 1%	189256-85	RN55D4R87F
R96	680	189206	RC07GF681J
R97	10K	189227	RC07GF103J
R98	3.3K	189223	RC07GF332J
R99	390	189180	RC07GF391J
R100	294, 1/8W, 1%	89327-34	RN55D294RF
R101	Potentiometer, 10K	88453-31	Helitrim
R102	3K	89256-86	RC07GF301J
R103	Potentiometer, 5K	88453-32	Helitrim
R104	261, 1/8W, 1%	89327-47	RN55D261RF
R105	1K	189220	RC07GF101J
R106	100	89202	RC07GF101J
	RESISTOR NETWORKS		
RN1	4.7K, 8 Pin	188540-31	
	TRANSFORMERS		
T1	5T	1842016-1	MAC
	TERMINAL BLOCKS		
TB1	9 Position	189892-26	
TB2	3 Position	189892-24	
TB3	4 Position	189892-25	
	INTEGRATED CIRCUITS		
U1	MC10H116	189975-25	
U2	μA78M05	189976-94	
U3	MWA130	189889-72	
U4	μA733DC	189889-76	
U5	TL084IJ	189976-96	
U6	LM340AT	189889-90	
U7	μA79M12	189976-92	
U8	μA78M12	189889-25	
U9	μA78MGU1C	189889-82	
	VARISTORS		
VR1,VR2	GEV47-ZA7	189195-1	
	SHORTING PLUGS		
W1,W2,W3,W4,W5	Shorting Plug	188500-23	
W6	Harness (Jumper)	844344-1	MAC

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RECEIVER VIDEO DEMODULATOR PWB ASSEMBLY (WIDEBAND) PN 1841552-3			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	20 pF, 5%	89009-28	DM12
C2,C4	10, 35V	189719-9	Hilton SWT35Z10
C5	0.001	89007-53	
C6	68 pF, 5%	89009-54	DM12
C7,C8	10, 35V	189719-9	Hilton SWT35Z10
C9	Variable, 1.5-4.0 pF	189100-29	Black Dot
C10,C11	10 pF, 5%	89009-49	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13,C14	3 pF, 5%	89009-36	DM12
C15	0.1, 63V	189010-4	
C16	220, 25V	189719-75	Hilton SWT25Z220
C17	0.01, 100V	189010-2	
C18	470, 16V	189018-26	
C19	2200, 16V	189018-25	
C20	Kynar Jumper		
C21	12 pF ± 0.5 pF	89009-37	
C22,C23	470, 16V	189018-26	
C24	220, 25V	189719-75	Hilton SWT25Z220
C25	3 pF, 5%	89009-36	DM12
C26	0.47, 63V	189010-9	
C27	220, 25V	189719-75	Hilton SWT25Z220
C28	0.01, 100V	189010-2	
C29	0.001	189010-1	
C30	0.01, 100V	189010-2	
C31,C32	470, 16V	189018-26	
C33	3 pF, 5%	89009-36	DM12
C34	0.47, 63V	189010-9	
C35	220, 25V	189719-75	Hilton SWT25Z220
C36	100, 25V	189719-4	Hilton SWT25Z100
C37	0.01, 100V	189010-2	
C38	10, 35V	189719-9	Hilton SWT35Z10
C39	0.001	189010-1	
C40	100, 25V	189719-4	Hilton SWT25Z100
C41	0.01, 100V	189010-2	
C42	10, 35V	189719-9	Hilton SWT35Z10
C43	100, 25V	189719-4	Hilton SWT25Z100
C44	0.01, 100V	189010-2	
C45	10, 35V	189719-9	Hilton SWT35Z10
C47	0.001	189010-1	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
C48	8.2	189765	Kemet
C49	10, 35V	189719-9	Hilton SWT35Z10
C50	0.001	89009-53	DM12
C51,C52	0.01, 100V	189010-2	
C53	8.2	189765	Kemet
C54	360 pF, 1%	89009-76	
C55	0.01, 100V	189010A-2	
C56	8.2	89009-61	DM12
C57	1200 pF	89009-62	DM12
C58	62 pF	189008-71	CM05ED620J03
	DIODES		
CR1,CR2	1N6263	189440-86	
CR3,CR4,CR5	1N4148	189405	
CR6,CR7	1N6263	189440-86	
CR8,CR9,CR10,CR11	1N4148	189405	
	LEDS		
DS1,DS2	Green, Right Angle, PC Mount	89904-45	
	TERMINALS		
E1,E2,E6,E7,E8,E9,E10,E11, E12,E13,E14,E15,E16,E17	Pin	188500-29	Berg 75401
E18,E19,E20,E21	Bifurcated	184844-33	
E22,E23,E24,E25	Pin	188500-29	Berg 75401
	FUSES		
F1	2A	188200-2	
F2	0.5A	188203	
	CONNECTORS		
J1	Right Angle F	189397-5	
J2,J3	Right Angle BNC	188357-48	
J4,J5,J6	Pin	188500-29	Berg 75401
	RELAYS		
K1	Relay	189800-28	Aromat RSD-5V
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L1	0.82	189169-6	Delevan 1025-18
L2	5.6	189169-83	Delevan 1025-38
L3,L4	Inductor	189169-37	Ferroxcube VK200-10/3B

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
L5	5-1/2T, Shielded	189162-56	Coilcraft T7-150 (GRN)
L6	8-1/2T, Unshielded	189162-55	Coilcraft T7-147(GRAY)
L7	3.9	189169-82	Delevan 1025-34
	TRANSISTORS		
Q1	2N3904	189700	Motorola
Q2,Q3	MPS918	189774	
Q4	2N3906	189727	Motorola
Q5,Q6	MPS918	189774	
Q7	2N3906	189727	Motorola
Q8	2N2219	187223-21	
Q9	2N2905	189728-12	
Q10	2N3904	189700	Motorola
Q11	2N3906	189727	Motorola
Q12,Q13	MPS918	189774	
Q14	2N3906	189727	Motorola.
Q15	2N2219	187223-21	
Q16	2N2905	189728-12	
Q17,Q18,Q19,Q20	2N3904	189700	Motorola
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	51	189238-38	RC07GF510J
R2,R3,R4,R5	620	89200-10	RC07GF621J
R6	36	189479	RC07GF360J
R7	30, 1/2W, 5%	188541-57	RC20GF300J
R8	Potentiometer, 100	88453-33	Helitrim
R9	300	189486	RC07GF301J
R10	Potentiometer, 200	188453-74	Heilitrim
R11,R12	390	189180	RC07GF391J
R13	To Be Determined Later		
R14	1.5K	189236	RC07GF152J
R15	1.2K	189221	RC07GF122J
R16	120	189203	RC07GF121J
R17	1K	189220	RC07GF101J
R18	620	89200-10	RC07GF621J
R19,R20	Potentiometer, 200	188453-74	Heilitrim
R21	470	189234	RC07GF471J
R22	Potentiometer, 200	188453-74	Heilitrim
R23	240	189200-4	RC07GF241J
R24	15	189239	RC07GF150J
R25	5.6K	189226	RC07GF562J
R26	15	189239	RC07GF150J
R27	56	189232	RC07GF560J
R28	2K	189488	RC07GF201J

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
R30	1.5K	189236	RC07GF152J
R31	510	89481-19	RC07GF511J
R33	Potentiometer, 100	88453-33	Helitrim
R34	1K	189220	RC07GF101J
R35	1M	189238-30	RC07GF105J
R36	1K	189220	RC07GF101J
R37	360	189200-11	RC07GF361J
R38	100	89202	RC07GF101J
R39	33	189478	RC07GF330J
R40	Potentiometer, 100	88453-33	Helitrim
R41	33	189478	RC07GF330J
R42	3K	189490	RC07GF301J
R43	100	89202	RC07GF101J
R44	62	189481-18	RC07GF620J
R45	1K	189220	RC07GF101J
R46	62	189481-18	RC07GF620J
R47	1.8K	188248	RC07GF182J
R48,R49	20	189477	RC07GF200J
R50	75	89280	RC07GF750J
R51	4.7K, 1/8W, 1%	89262-51	
R52	Potentiometer, 20K	188453-24	Helitrim
R53	27K	188078	RC07GF273J
R54,R55	100K	189278	RC07GF104J
R56	Thermistor, 10K	89735-3	
R57	75K	189200-8	RC07GF753J
R58	Bus Wire No. 22 AWG	188300-22	
R59	10K	189227	
R60	Potentiometer, 10K, 4 Turn	188453-73	
R61	100	89202	RC07GF101J
R62	1.8K	188248	RC07GF182J
R63	Thermistor, 10K	89735-3	
R64	750	189487	RC07GF751J
R65	18	189476	RC07GF180J
R66	160	189200-13	RC07GF161J
R67	100	89202	RC07GF101J
R68	300	189486	RC07GF301J
R69	Potentiometer, 100	88453-33	Helitrim
R70	1M	189200-11	RC07GF105J
R71	360	189200-11	RC07GF361J
R72	100	89202	RC07GF101J
R73,R74	33	189478	RC07GF330J
R75	Potentiometer, 100	8845	Helitrim
R76	3K	189490	RC07GF301J
R77	100	89202	RC07GF101J
R78,R79	62	189481-18	RC07GF620J
R80	1K	189220	RC07GF101J
R81	1.8K	188248	RC07GF182J
R82	20	189477	RC07GF200J

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
R83	75	89280	RC07GF750J
R84	240, 1/2W 5%	189575-7	RC20GF241J
R85	750	189487	RC07GF751J
R86	75	89280	RC07GF750J
R87	1K	189220	RC07GF101J
R88	20	189477	RC07GF200J
R90	27K	188078	RC07GF273J
R91	10K	189227	RC07GF103J
R92	1M	189238-30	RC07GF105J
R94	1.96K, 1/8W, 1%	189327-69	RN55D1R96F
R95	4.87K, 1/8W, 1%	189256-85	RN55D4R87F
R96	680	189206	RC07GF681J
R97	10K	189227	RC07GF103J
R98	3.3K	189223	RC07GF332J
R99	390	189180	RC07GF391J
R100	294, 1/8W, 1%	89327-34	RN55D294RF
R101	Potentiometer, 10K	88453-31	Helitrim
R102	3K	89256-86	RC07GF301J
R103	Potentiometer, 5K	88453-32	Helitrim
R104	261, 1/8W, 1%	89327-47	RN55D261RF
R105	1K	189220	RC07GF101J
R106	100	89202	RC07GF101J
	RESISTOR NETWORKS		
RN1	4.7K, 8 Pin	188540-31	
	TRANSFORMERS		
T1	5T	1842016-1	MAC
	TERMINAL BLOCKS		
TB1	9 Position	189892-26	
TB2	3 Position	189892-24	
TB3	4 Position	189892-25	
	INTEGRATED CIRCUITS		
U1	MC10H116	189975-25	
U2	µA78M05	189976-94	
U3	MWA130	189889-72	
U4	µA733DC	189889-76	
U5	TL084IJ	189976-96	
U6	LM340AT	189889-90	
U7	µA79M12	189976-92	
U8	µA78M12	189889-25	
U9	µA78MGU1C	189889-82	
	VARISTORS		
VR1,VR2	GEV47-ZA7	189195-1	
	SHORTING PLUGS		
W1,W2,W3,W4,W5	Shorting Plug	188500-23	
W6	Harness (Jumper)	844344-1	MAC

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RECEIVER AUDIO DEMODULATOR PWB ASSEMBLY PN 1841576-1 (6.2 MHz/75 μs)			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2	100, 25V	189719-4	Hilton SWT25Z10
C3	1200 pF	189008-84	
C4	100, 25V	189719-4	Hilton SWT25Z10
C5	0.001, 100V	189010-1	
C6,C7	10, 35V	189719-9	Hilton SWT35Z10
C8,C9	0.01, 100V	189010-2	
C10	100 pF	89009-23	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13	10, 35V	189719-9	Hilton SWT35Z10
C14,C15	0.01, 100V	189010-2	
C16	0.001, 100V	189010-1	
C17	0.022, 1%	188214-35	
C18,C19	0.001, 100V	189010-1	
C20,C21	20 pF	89009-28	DM12
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7	Pin	188500-29	Berg
	FILTERS		
FL1	Filter	89803-6	Toko 7VST 237BX-1395(6.2)
FL2	Optional	TBD	
	CONNECTORS		
J1	Receptacle	188500-31	Berg
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L1,L2	33	189169-84	Delevan 1025-56
L3	39	189169-94	Delevan 1025-58
L4	6.8	189169-64	Delevan 1025-40
L5	9-1/2T (White) Unshielded	189162-24	Coilcraft T7-142
	TRANSISTORS		
Q1	2N3904	189700A	Motorola
Q2	2N3906	189727A	Motorola
Q3	2N3904	189700A	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	274, 1/8W, 1%	189256-35	RN55D274RF
R2	24	189238-20	RC07GF240J
R3	100K, 1/8W, 1%	189330	RN55D1004RF
R4	10K, 1/8W, 1%	189326	RN55D1003RF
R5	90.9K, 1/8W, 1%	189328	RN55D90R09F
R6	274, 1/8W, 1%	189256-35	RN55D274RF
R7	24	189238-20	RC07GF240J
R8	910	189200-19	RC07GF911J
R9	Potentiometer, 5K	188453-92	Helitrim
R10	330	189205	RC07GF331J
R11	820	189207	RC07GF821J
R12	3K	189490	RC07GF301J
R13	10K	189227	RC07GF103J
R14	6.2K	89200-5	RC07GF622J
R15,R16	10K	189227	RC07GF103J
R17	100	189202	RC07GF101J
R18	270	189485	RC07GF271J
R19 (Optional)	1.2K	189221	RC07GF122J
R20	5.6K	189226	RC07GF562J
R21	1.6K	189481-59	RC07GF162J
R22	1K	189220	RC07GF101J
R23	10	189231	RC07GF100J
R24	3.4K, 1/8W, 1%	189327-81	RN55D3R40F
R25	100	189202	RC07GF101J
R26	620	189200-10	RC07GF621J
R27	27K	188078	RC07GF273J
	INTEGRATED CIRCUITS		
U1	NE5532	1899975-42	
U2	CA3189	189889-87	
	SHORTING PLUGS		
W1,W2,W3	Shorting Plug	188500-23	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RECEIVER AUDIO DEMODULATOR PWB ASSEMBLY PN 1841576-1 (6.8 MHz/75 μs)			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2	100, 25V	189719-4	Hilton SWT25Z10
C3	1200 pF	189008-84	
C4	100, 25V	189719-4	Hilton SWT25Z10
C5	0.001, 100V	189010-1	
C6,C7	10, 35V	189719-9	Hilton SWT35Z10
C8,C9	0.01, 100V	189010-2	
C10	100 pF	89009-23	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13	10, 35V	189719-9	Hilton SWT35Z10
C14,C15	0.01, 100V	189010-2	
C16	0.001, 100V	189010-1	
C17	0.022, 1%	188214-35	
C18,C19	0.001, 100V	189010-1	
C20,C21	20 pF	89009-28	DM12
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7	Pin	188500-29	Berg
	FILTERS		
FL1	Filter	89803-5	Toko 7VST 237BX-1386(6.8)
FL2	Optional	TBD	
	CONNECTORS		
J1	Receptacle	188500-31	Berg
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	33	189169-84	Delevan 1025-56
L4	5.6	189169-83	Delevan 1025-38
L5	9-1/2T (White) Unshielded	189162-24	Coilcraft T7-142
	TRANSISTORS		
Q1	2N3904	189700A	Motorola
Q2	2N3906	189727A	Motorola
Q3	2N3904	189700A	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	274, 1/8W, 1%	189256-35	RN55D274RF
R2	24	189238-20	RC07GF240J
R3	100K, 1/8W, 1%	189330	RN55D1004RF
R4	10K, 1/8W, 1%	189326	RN55D1003RF
R5	90.9K, 1/8W, 1%	189328	RN55D90R09F
R6	274, 1/8W, 1%	189256-35	RN55D274RF
R7	24	189238-20	RC07GF240J
R8	910	189200-19	RC07GF911J
R9	Potentiometer, 5K	188453-92	Helitrim
R10	330	189205	RC07GF331J
R11	820	189207	RC07GF821J
R12	3.9K	189224	RC07GF392J
R13	10K	189227	RC07GF103J
R14	6.2K	89200-5	RC07GF622J
R15,R16	10K	189227	RC07GF103J
R17	100	189202	RC07GF101J
R18	270	189485	RC07GF271J
R19 (Optional)	1.2K	189221	RC07GF122J
R20	5.6K	189226	RC07GF562J
R21	1.6K	189481-59	RC07GF162J
R22	1K	189220	RC07GF101J
R23	10	189231	RC07GF100J
R24	3.4K, 1/8W, 1%	189327-81	RN55D3R40F
R25	100	189202	RC07GF101J
R26	620	189200-10	RC07GF621J
R27	27K	188078	RC07GF273J
	INTEGRATED CIRCUITS		
U1	NE5532	1899975-42	
U2	CA3189	189889-87	
	SHORTING PLUGS		
W1,W2,W3	Shorting Plug	188500-23	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RECEIVER AUDIO DEMODULATOR PWB ASSEMBLY PN 1841576-3 (7.5 MHz/75 μs)			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2	100, 25V	189719-4	Hilton SWT25Z10
C3	1200 pF	189008-84	
C4	100, 25V	189719-4	Hilton SWT25Z10
C5	0.001, 100V	189010-1	
C6,C7	10, 35V	189719-9	Hilton SWT35Z10
C8,C9	0.01, 100V	189010-2	
C10	82 pF	89009-63	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13	10, 35V	189719-9	Hilton SWT35Z10
C14,C15	0.01, 100V	189010-2	
C16	0.001, 100V	189010-1	
C17	0.022, 1%	188214-35	
C18,C19	0.001, 100V	189010-1	
C20,C21	20 pF	89009-28	DM12
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7	Pin	188500-29	Berg
	FILTERS		
FL1	Filter	89803-9	Toko 7VST 237BX-1973(7.5)
FL2	Optional	TBD	
	CONNECTORS		
J1	Receptacle	188500-31	Berg
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	33	189169-84	Delevan 1025-56
L4	5.6	189169-83	Delevan 1025-38
L5	8-1/2T (Grey) Shielded	189162-49	Coilcraft T7-142
	TRANSISTORS		
Q1	2N3904	189700A	Motorola
Q2	2N3906	189727A	Motorola
Q3	2N3904	189700A	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	274, 1/8W, 1%	189256-35	RN55D274RF
R2	24	189238-20	RC07GF240J
R3	100K, 1/8W, 1%	189330	RN55D1004RF
R4	10K, 1/8W, 1%	189326	RN55D1003RF
R5	90.9K, 1/8W, 1%	189328	RN55D90R09F
R6	274, 1/8W, 1%	189256-35	RN55D274RF
R7	24	189238-20	RC07GF240J
R8	910	189200-19	RC07GF911J
R9	Potentiometer, 5K	188453-92	Helitrim
R10	330	189205	RC07GF331J
R11	750	189487	RC07GF751J
R12	4.3K	189481-39	RC07GF432J
R13	10K	189227	RC07GF103J
R14	6.2K	89200-5	RC07GF622J
R15,R16	10K	189227	RC07GF103J
R17	100	189202	RC07GF101J
R18	270	189485	RC07GF271J
R19 (Optional)	1.2K	189221	RC07GF122J
R20	5.6K	189226	RC07GF562J
R21	1.6K	189481-59	RC07GF162J
R22	1K	189220	RC07GF101J
R23	10	189231	RC07GF100J
R24	3.4K, 1/8W, 1%	189327-81	RN55D3R40F
R25	100	189202	RC07GF101J
R26	620	189200-10	RC07GF621J
R27	27K	188078	RC07GF273J
	INTEGRATED CIRCUITS		
U1	NE5532	1899975-42	
U2	CA3189	189889-87	
	SHORTING PLUGS		
W1,W2,W3	Shorting Plug	188500-23	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RECEIVER AUDIO DEMODULATOR PWB ASSEMBLY PN 1841576-4 (6.2 MHz/50 µs)			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2	100, 25V	189719-4	Hilton SWT25Z10
C3	1200 pF	189008-84	
C4	100, 25V	189719-4	Hilton SWT25Z10
C5	0.001, 100V	189010-1	
C6,C7	10, 35V	189719-9	Hilton SWT35Z10
C8,C9	0.01, 100V	189010-2	
C10	100 pF	89009-23	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13	10, 35V	189719-9	Hilton SWT35Z10
C14,C15	0.01, 100V	189010-2	
C16	0.001, 100V	189010-1	
C17	0.022, 1%	188214-35	
C18,C19	0.001, 100V	189010-1	
C20,C21	20 pF	89009-28	DM12
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7	Pin	188500-29	Berg
	FILTERS		
FL1	Filter	89803-6	Toko 7VST 237BX-1395(6.2)
FL2	Optional	TBD	
	CONNECTORS		
J1	Receptacle	188500-31	Berg
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L1,L2	33	189169-84	Delevan 1025-56
L3	39	189169-94	Delevan 1025-58
L4	6.8	189169-64	Delevan 1025-40
L5	9-1/2T (White) Unshielded	189162-24	Coilcraft T7-142
	TRANSISTORS		
Q1	2N3904	189700A	Motorola
Q2	2N3906	189727A	Motorola
Q3	2N3904	189700A	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	274, 1/8W, 1%	189256-35	RN55D274RF
R2	24	189238-20	RC07GF240J
R3	100K, 1/8W, 1%	189330	RN55D1004RF
R4	10K, 1/8W, 1%	189326	RN55D1003RF
R5	90.9K, 1/8W, 1%	189328	RN55D90R09F
R6	274, 1/8W, 1%	189256-35	RN55D274RF
R7	24	189238-20	RC07GF240J
R8	910	189200-19	RC07GF911J
R9	Potentiometer, 5K	188453-92	Helitrim
R10	330	189205	RC07GF331J
R11	820	189207	RC07GF821J
R12	3K	189490	RC07GF301J
R13	10K	189227	RC07GF103J
R14	6.2K	89200-5	RC07GF622J
R15,R16	10K	189227	RC07GF103J
R17	100	189202	RC07GF101J
R18	270	189485	RC07GF271J
R19 (Optional)	1.2K	189221	RC07GF122J
R20	5.6K	189226	RC07GF562J
R21	1.6K	189481-59	RC07GF162J
R22	1K	189220	RC07GF101J
R23	10	189231	RC07GF100J
R24	2.26K, 1/8W, 1%	88541-63	RN55D2R26F
R25	100	189202	RC07GF101J
R26	620	189200-10	RC07GF621J
R27	27K	188078	RC07GF273J
	INTEGRATED CIRCUITS		
U1	NE5532	1899975-42	
U2	CA3189	189889-87	
	SHORTING PLUGS		
W1,W2,W3	Shorting Plug	188500-23	

RECEIVER AUDIO DEMODULATOR PWB ASSEMBLY PN 1841576-5 (6.8 MHz/50 μs)

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2	100, 25V	189719-4	Hilton SWT25Z10
C3	1200 pF	189008-84	
C4	100, 25V	189719-4	Hilton SWT25Z10
C5	0.001, 100V	189010-1	
C6,C7	10, 35V	189719-9	Hilton SWT35Z10
C8,C9	0.01, 100V	189010-2	
C10	100 pF	89009-23	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13	10, 35V	189719-9	Hilton SWT35Z10
C14,C15	0.01, 100V	189010-2	
C16	0.001, 100V	189010-1	
C17	0.022, 1%	188214-35	
C18,C19	0.001, 100V	189010-1	
C20,C21	20 pF	89009-28	DM12
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7	Pin	188500-29	Berg
	FILTERS		
FL1	Filter	89803-6	Toko 7VST 237BX-1395(6.2)
FL2	Optional	TBD	
	CONNECTORS		
J1	Receptacle	188500-31	Berg
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	33	189169-84	Delevan 1025-56
L4	5.6	189169-83	Delevan 1025-38
L5	9-1/2T (White) Unshielded	189162-24	Coilcraft T7-142
	TRANSISTORS		
Q1	2N3904	189700A	Motorola
Q2	2N3906	189727A	Motorola
Q3	2N3904	189700A	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	274, 1/8W, 1%	189256-35	RN55D274RF
R2	24	189238-20	RC07GF240J
R3	100K, 1/8W, 1%	189330	RN55D1004RF
R4	10K, 1/8W, 1%	189326	RN55D1003RF
R5	90.9K, 1/8W, 1%	189328	RN55D90R09F
R6	274, 1/8W, 1%	189256-35	RN55D274RF
R7	24	189238-20	RC07GF240J
R8	910	189200-19	RC07GF911J
R9	Potentiometer, 5K	188453-92	Helitrim
R10	330	189205	RC07GF331J
R11	820	189207	RC07GF821J
R12	3.9K	189224	RC07GF392J
R13	10K	189227	RC07GF103J
R14	6.2K	89200-5	RC07GF622J
R15,R16	10K	189227	RC07GF103J
R17	100	189202	RC07GF101J
R18	270	189485	RC07GF271J
R19 (Optional)	1.2K	189221	RC07GF122J
R20	5.6K	189226	RC07GF562J
R21	1.6K	189481-59	RC07GF162J
R22	1K	189220	RC07GF101J
R23	10	189231	RC07GF100J
R24	2.26K, 1/8W, 1%	88451-63	RN55D2R26F
R25	100	189202	RC07GF101J
R26	620	189200-10	RC07GF621J
R27	27K	188078	RC07GF273J
	INTEGRATED CIRCUITS		
U1	NE5532	1899975-42	
U2	CA3189	189889-87	
	SHORTING PLUGS		
W1,W2,W3	Shorting Plug	188500-23	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RECEIVER AUDIO DEMODULATOR PWB ASSEMBLY PN 1841576-6 (7.5 MHz/50 μs)			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2	100, 25V	189719-4	Hilton SWT25Z10
C3	1200 pF	189008-84	
C4	100, 25V	189719-4	Hilton SWT25Z10
C5	0.001, 100V	189010-1	
C6,C7	10, 35V	189719-9	Hilton SWT35Z10
C8,C9	0.01, 100V	189010-2	
C10	82 pF	89009-63	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13	10, 35V	189719-9	Hilton SWT35Z10
C14,C15	0.01, 100V	189010-2	
C16	0.001, 100V	189010-1	
C17	0.022, 1%	188214-35	
C18,C19	0.001, 100V	189010-1	
C20,C21	20 pF	89009-28	DM12
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7	Pin	188500-29	Berg
	FILTERS		
FL1	Filter	89803-9	Toko 7VST 237BX-1973(7.5)
FL2	Optional	TBD	
	CONNECTORS		
J1	Receptacle	188500-31	Berg
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	33	189169-84	Delevan 1025-56
L4	5.6	189169-83	Delevan 1025-38
L5	8-1/2T (Grey) Shielded	189162-49	Coilcraft T7-142
	TRANSISTORS		
Q1	2N3904	189700A	Motorola
Q2	2N3906	189727A	Motorola
Q3	2N3904	189700A	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	274, 1/8W, 1%	189256-35	RN55D274RF
R2	24	189238-20	RC07GF240J
R3	100K, 1/8W, 1%	189330	RN55D1004RF
R4	10K, 1/8W, 1%	189326	RN55D1003RF
R5	90.9K, 1/8W, 1%	189328	RN55D90R09F
R6	274, 1/8W, 1%	189256-35	RN55D274RF
R7	24	189238-20	RC07GF240J
R8	910	189200-19	RC07GF911J
R9	Potentiometer, 5K	188453-92	Helitrim
R10	330	189205	RC07GF331J
R11	750	189487	RC07GF751J
R12	4.3K	189481-39	RC07GF432J
R13	10K	189227	RC07GF103J
R14	6.2K	89200-5	RC07GF622J
R15,R16	10K	189227	RC07GF103J
R17	100	189202	RC07GF101J
R18	270	189485	RC07GF271J
R19 (Optional)	1.2K	189221	RC07GF122J
R20	5.6K	189226	RC07GF562J
R21	1.6K	189481-59	RC07GF162J
R22	1K	189220	RC07GF101J
R23	10	189231	RC07GF100J
R24	2.26K, 1/8W, 1%	88451-63	RN55D2R26F
R25	100	189202	RC07GF101J
R26	620	189200-10	RC07GF621J
R27	27K	188078	RC07GF273J
	INTEGRATED CIRCUITS		
U1	NE5532	1899975-42	
U2	CA3189	189889-87	
	SHORTING PLUGS		
W1,W2,W3	Shorting Plug	188500-23	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RECEIVER AUDIO DEMODULATOR PWB ASSEMBLY PN 1841576-7 (4.83 MHz/75 μs)			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2	100, 25V	189719-4	Hilton SWT25Z10
C3	1200 pF	189008-84	
C4	100, 25V	189719-4	Hilton SWT25Z10
C5	0.001, 100V	189010-1	
C6,C7	10, 35V	189719-9	Hilton SWT35Z10
C8,C9	0.01, 100V	189010-2	
C10	100 pF	89009-23	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13	10, 35V	189719-9	Hilton SWT35Z10
C14,C15	0.01, 100V	189010-2	
C16	0.001, 100V	189010-1	
C17	0.022, 1%	188214-35	
C18,C19	0.001, 100V	189010-1	
C20,C21	20 pF	89009-28	DM12
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7	Pin	188500-29	Berg
	FILTERS		
FL1	Filter	89803-11	Toko 7VST 237BX-1990(4.83)
FL2	Optional	TBD	
	CONNECTORS		
J1	Receptacle	188500-31	Berg
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L1,L2	33	189169-84	Delevan 1025-56
L3	47	189169-90	Delevan 1025-60
L4	10	189169-66	Delevan 1025-44
L5	14-1/2T (Yellow) Unshielded	189162-75	Coilcraft T7-143
	TRANSISTORS		
Q1	2N3904	189700A	Motorola
Q2	2N3906	189727A	Motorola
Q3	2N3904	189700A	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	274, 1/8W, 1%	189256-35	RN55D274RF
R2	24	189238-20	RC07GF240J
R3	100K, 1/8W, 1%	189330	RN55D1004RF
R4	10K, 1/8W, 1%	189326	RN55D1003RF
R5	90.9K, 1/8W, 1%	189328	RN55D90R09F
R6	274, 1/8W, 1%	189256-35	RN55D274RF
R7	24	189238-20	RC07GF240J
R8	910	189200-19	RC07GF911J
R9	Potentiometer, 5K	188453-92	Helitrim
R10	330	189205	RC07GF331J
R11	910	189200-19	RC07GF911J
R12	3K	189490	RC07GF301J
R13	10K	189227	RC07GF103J
R14	6.2K	89200-5	RC07GF622J
R15,R16	10K	189227	RC07GF103J
R17	100	189202	RC07GF101J
R18	270	189485	RC07GF271J
R19 (Optional)	1.2K	189221	RC07GF122J
R20	5.6K	189226	RC07GF562J
R21	1.6K	189481-59	RC07GF162J
R22	1K	189220	RC07GF101J
R23	10	189231	RC07GF100J
R24	3.4K, 1/8W, 1%	189327-81	RN55D3R40F
R25	100	189202	RC07GF101J
R26	620	189200-10	RC07GF621J
R27	27K	188078	RC07GF273J
	INTEGRATED CIRCUITS		
U1	NE5532	1899975-42	
U2	CA3189	189889-87	
	SHORTING PLUGS		
W1,W2,W3	Shorting Plug	188500-23	

RECEIVER AUDIO DEMODULATOR PWB ASSEMBLY PN 1841576-8 (4.83 MHz/50 μs)

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
	All capacitors are in microfarads unless otherwise specified.		
C1,C2	100, 25V	189719-4	Hilton SWT25Z10
C3	1200 pF	189008-84	
C4	100, 25V	189719-4	Hilton SWT25Z10
C5	0.001, 100V	189010-1	
C6,C7	10, 35V	189719-9	Hilton SWT35Z10
C8,C9	0.01, 100V	189010-2	
C10	100 pF	89009-23	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13	10, 35V	189719-9	Hilton SWT35Z10
C14,C15	0.01, 100V	189010-2	
C16	0.001, 100V	189010-1	
C17	0.022, 1%	188214-35	
C18,C19	0.001, 100V	189010-1	
C20,C21	20 pF	89009-28	DM12
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7	Pin	188500-29	Berg
	FILTERS		
FL1	Filter	89803-6	Toko 7VST 237BX-1395(6.2)
FL2	Optional	TBD	
	CONNECTORS		
J1	Receptacle	188500-31	Berg
	INDUCTORS		
	All inductors are in microhenries unless otherwise specified.		
L1,L2	33	189169-84	Delevan 1025-56
L3	47	189169-90	Delevan 1025-60
L4	10	189169-66	Delevan 1025-44
L5	14-1/2T (Yellow) Unshielded	189162-75	Coilcraft T7-143
	TRANSISTORS		
Q1	2N3904	189700A	Motorola
Q2	2N3906	189727A	Motorola
Q3	2N3904	189700A	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	274, 1/8W, 1%	189256-35	RN55D274RF
R2	24	189238-20	RC07GF240J
R3	100K, 1/8W, 1%	189330	RN55D1004RF
R4	10K, 1/8W, 1%	189326	RN55D1003RF
R5	90.9K, 1/8W, 1%	189328	RN55D90R09F
R6	274, 1/8W, 1%	189256-35	RN55D274RF
R7	24	189238-20	RC07GF240J
R8	910	189200-19	RC07GF911J
R9	Potentiometer, 5K	188453-92	Helitrim
R10	330	189205	RC07GF331J
R11	910	189200-19	RC07GF911J
R12	3K	189490	RC07GF301J
R13	10K	189227	RC07GF103J
R14	6.2K	89200-5	RC07GF622J
R15,R16	10K	189227	RC07GF103J
R17	100	189202	RC07GF101J
R18	270	189485	RC07GF271J
R19 (Optional)	1.2K	189221	RC07GF122J
R20	5.6K	189226	RC07GF562J
R21	1.6K	189481-59	RC07GF162J
R22	1K	189220	RC07GF101J
R23	10	189231	RC07GF100J
R24	2.26K, 1/8W, 1%	88451-63	RN55D2R26F
R25	100	189202	RC07GF101J
R26	620	189200-10	RC07GF621J
R27	27K	188078	RC07GF273J
	INTEGRATED CIRCUITS		
U1	NE5532	1899975-42	
U2	CA3189	189889-87	
	SHORTING PLUGS		
W1,W2,W3	Shorting Plug	188500-23	

RECEIVER AUDIO DEMODULATOR PWB ASSEMBLY PN 1841576-9 (7.02 MHz/75 μs)

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2	100, 25V	189719-4	Hilton SWT25Z10
C3	1200 pF	189008-84	
C4	100, 25V	189719-4	Hilton SWT25Z10
C5	0.001, 100V	189010-1	
C6,C7	10, 35V	189719-9	Hilton SWT35Z10
C8,C9	0.01, 100V	189010-2	
C10	68 pF	89009-54	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13	10, 35V	189719-9	Hilton SWT35Z10
C14,C15	0.01, 100V	189010-2	
C16	0.001, 100V	189010-1	
C17	0.022, 1%	188214-35	
C18,C19	0.001, 100V	189010-1	
C20,C21	20 pF	89009-28	DM12
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7	Pin	188500-29	Berg
	FILTERS		
FL1	T1	89803-14T1	7KMT1-292BC-1955F(7.02)
FL1	T2	89803-14T2	7KMT2-F292BC-1678EQB(7.02)
FL1	T3	89803-14T3	7KMT3-292BC-1688R(7.02)
FL2	Optional	TBD	
	CONNECTORS		
J1	Receptacle	188500-31	Berg
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	33	189169-84	Delevan 1025-56
L4	8.2	189169-95	Delevan 1025-42
L5	8-1/2T Unshielded	189162-74	Coilcraft T7-142
	TRANSISTORS		
Q1	2N3904	189700A	Motorola
Q2	2N3906	189727A	Motorola
Q3	2N3904	189700A	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	274, 1/8W, 1%	189256-35	RN55D274RF
R2	24	189238-20	RC07GF240J
R3	100K, 1/8W, 1%	189330	RN55D1004RF
R4	10K, 1/8W, 1%	189326	RN55D1003RF
R5	90.9K, 1/8W, 1%	189328	RN55D90R09F
R6	274, 1/8W, 1%	189256-35	RN55D274RF
R7	24	189238-20	RC07GF240J
R8	910	189200-19	RC07GF911J
R9	Potentiometer, 5K	188453-92	Helitrim
R10	330	189205	RC07GF331J
R11	750	189487	RC07GF751J
R12	3.9K	189224	RC07GF392J
R13	10K	189227	RC07GF103J
R14	6.2K	89200-5	RC07GF622J
R15,R16	10K	189227	RC07GF103J
R17	100	189202	RC07GF101J
R18	270	189485	RC07GF271J
R19 (Optional)	1.2K	189221	RC07GF122J
R20	5.6K	189226	RC07GF562J
R21	1.6K	189481-59	RC07GF162J
R22	1K	189220	RC07GF101J
R23	10	189231	RC07GF100J
R24	3.4K, 1/8W, 1%	189327-81	RN55D3R40F
R25	100	189202	RC07GF101J
R26	620	189200-10	RC07GF621J
R27	27K	188078	RC07GF273J
	INTEGRATED CIRCUITS		
U1	NE5532	1899975-42	
U2	CA3189	189889-87	
	SHORTING PLUGS		
W1,W2,W3	Shorting Plug	188500-23	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RECEIVER AUDIO DEMODULATOR PWB ASSEMBLY PN 1841576-10 (7.02 MHz/50 μs)			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2	100, 25V	189719-4	Hilton SWT25Z10
C3	1200 pF	189008-84	
C4	100, 25V	189719-4	Hilton SWT25Z10
C5	0.001, 100V	189010-1	
C6,C7	10, 35V	189719-9	Hilton SWT35Z10
C8,C9	0.01, 100V	189010-2	
C10	68 pF	89009-54	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13	10, 35V	189719-9	Hilton SWT35Z10
C14,C15	0.01, 100V	189010-2	
C16	0.001, 100V	189010-1	
C17	0.022, 1%	188214-35	
C18,C19	0.001, 100V	189010-1	
C20,C21	20 pF	89009-28	DM12
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7	Pin	188500-29	Berg
	FILTERS		
FL1	T1	89803-14T1	7KMT1-292BC-1955F(7.02)
FL1	T2	89803-14T2	7KMT2-F292BC-1687EQB(7.02)
FL1	T3	89803-14T3	7KT3-292BC-1688R(7.02)
FL2	Optional	TBD	
	CONNECTORS		
J1	Receptacle	188500-31	Berg
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	33	189169-84	Delevan 1025-56
L4	8.2	189169-95	Delevan 1025-42
L5	8-1/2T (Grey) Unshielded	189162-74	Coilcraft T7-142
	TRANSISTORS		
Q1	2N3904	189700A	Motorola
Q2	2N3906	189727A	Motorola
Q3	2N3904	189700A	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	274, 1/8W, 1%	189256-35	RN55D274RF
R2	24	189238-20	RC07GF240J
R3	100K, 1/8W, 1%	189330	RN55D1004RF
R4	10K, 1/8W, 1%	189326	RN55D1003RF
R5	90.9K, 1/8W, 1%	189328	RN55D90R09F
R6	274, 1/8W, 1%	189256-35	RN55D274RF
R7	24	189238-20	RC07GF240J
R8	910	189200-19	RC07GF911J
R9	Potentiometer, 5K	188453-92	Helitrim
R10	330	189205	RC07GF331J
R11	750	189487	RC07GF751J
R12	3.9K	189224	RC07GF392J
R13	10K	189227	RC07GF103J
R14	6.2K	89200-5	RC07GF622J
R15,R16	10K	189227	RC07GF103J
R17	100	189202	RC07GF101J
R18	270	189485	RC07GF271J
R19 (Optional)	1.2K	189221	RC07GF122J
R20	5.6K	189226	RC07GF562J
R21	1.6K	189481-59	RC07GF162J
R22	1K	189220	RC07GF101J
R23	10	189231	RC07GF100J
R24	2.26K, 1/8W, 1%	88451-63	RN55D2R26F
R25	100	189202	RC07GF101J
R26	620	189200-10	RC07GF621J
R27	27K	188078	RC07GF273J
	INTEGRATED CIRCUITS		
U1	NE5532	1899975-42	
U2	CA3189	189889-87	
	SHORTING PLUGS		
W1,W2,W3	Shorting Plug	188500-23	

RECEIVER AUDIO DEMODULATOR PWB ASSEMBLY PN 1841576-11 (8.065 MHz/75 μs)

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2	100, 25V	189719-4	Hilton SWT25Z10
C3	1200 pF	189008-84	
C4	100, 25V	189719-4	Hilton SWT25Z10
C5	0.001, 100V	189010-1	
C6,C7	10, 35V	189719-9	Hilton SWT35Z10
C8,C9	0.01, 100V	189010-2	
C10	75 pF	89009-74	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13	10, 35V	189719-9	Hilton SWT35Z10
C14,C15	0.01, 100V	189010-2	
C16	0.001, 100V	189010-1	
C17	0.022, 1%	188214-35	
C18,C19	0.001, 100V	189010-1	
C20,C21	20 pF	89009-28	DM12
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7	Pin	188500-29	Berg
	FILTERS		
FL1	T1	89803-15T1	7KMT1-292BC-1956F(8.065)
FL1	T2	89803-15T2	7KMT2-292BC-1690EQB(8.065)
FL1	T3	89803-15T3	7KMT3-292BC-1691F(8.065)
FL2	Optional	TBD	
	CONNECTORS		
J1	Receptacle	188500-31	Berg
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	27	189169-96	Delevan 1025-54
L4	5.6	189169-83	Delevan 1025-38
L5	8-1/2T (Grey) Unshielded	189162-74	Coilcraft T7-142
	TRANSISTORS		
Q1	2N3904	189700A	Motorola
Q2	2N3906	189727A	Motorola
Q3	2N3904	189700A	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	274, 1/8W, 1%	189256-35	RN55D274RF
R2	24	189238-20	RC07GF240J
R3	100K, 1/8W, 1%	189330	RN55D1004RF
R4	10K, 1/8W, 1%	189326	RN55D1003RF
R5	90.9K, 1/8W, 1%	189328	RN55D90R09F
R6	274, 1/8W, 1%	189256-35	RN55D274RF
R7	24	189238-20	RC07GF240J
R8	910	189200-19	RC07GF911J
R9	Potentiometer, 5K	188453-92	Helitrim
R10	330	189205	RC07GF331J
R11	750	189487	RC07GF751J
R12	3.9K	189224	RC07GF392J
R13	10K	189227	RC07GF103J
R14	6.2K	89200-5	RC07GF622J
R15,R16	10K	189227	RC07GF103J
R17	100	189202	RC07GF101J
R18	270	189485	RC07GF271J
R19 (Optional)	1.2K	189221	RC07GF122J
R20	5.6K	189226	RC07GF562J
R21	1.6K	189481-59	RC07GF162J
R22	1K	189220	RC07GF101J
R23	10	189231	RC07GF100J
R24	3.4K, 1/8W, 1%	189327-81	RN55D3R42F
R25	100	189202	RC07GF101J
R26	620	189200-10	RC07GF621J
R27	27K	188078	RC07GF273J
	INTEGRATED CIRCUITS		
U1	NE5532	1899975-42	
U2	CA3189	189889-87	
	SHORTING PLUGS		
W1,W2,W3	Shorting Plug	188500-23	

RECEIVER AUDIO DEMODULATOR PWB ASSEMBLY PN 1841576-12 (8.065 MHz/50 μs)

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
	All capacitors are in microfarads unless otherwise specified.		
C1,C2	100, 25V	189719-4	Hilton SWT25Z10
C3	1200 pF	189008-84	
C4	100, 25V	189719-4	Hilton SWT25Z10
C5	0.001, 100V	189010-1	
C6,C7	10, 35V	189719-9	Hilton SWT35Z10
C8,C9	0.01, 100V	189010-2	
C10	75 pF	89009-74	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13	10, 35V	189719-9	Hilton SWT35Z10
C14,C15	0.01, 100V	189010-2	
C16	0.001, 100V	189010-1	
C17	0.022, 1%	188214-35	
C18,C19	0.001, 100V	189010-1	
C20,C21	20 pF	89009-28	DM12
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7	Pin	188500-29	Berg
	FILTERS		
FL1	T1	89803-15T1	7KMT1-292BC-1956F(8.065)
FL1	T2	89803-15T2	7KMT2-292BC-1690EQB(8.065)
FL1	T3	89803-15T3	7KMT3-292BC-1691F(8.065)
FL2	Optional	TBD	
	CONNECTORS		
J1	Receptacle	188500-31	Berg
	INDUCTORS		
	All inductors are in microhenries unless otherwise specified.		
L3	27	189169-96	Delevan 1025-54
L4	5.6	189169-83	Delevan 1025-38
L5	8-1/2T (Grey) Unshielded	189162-74	Coilcraft T7-142
	TRANSISTORS		
Q1	2N3904	189700A	Motorola
Q2	2N3906	189727A	Motorola
Q3	2N3904	189700A	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	274, 1/8W, 1%	189256-35	RN55D274RF
R2	24	189238-20	RC07GF240J
R3	100K, 1/8W, 1%	189330	RN55D1004RF
R4	10K, 1/8W, 1%	189326	RN55D1003RF
R5	90.9K, 1/8W, 1%	189328	RN55D90R09F
R6	274, 1/8W, 1%	189256-35	RN55D274RF
R7	24	189238-20	RC07GF240J
R8	910	189200-19	RC07GF911J
R9	Potentiometer, 5K	188453-92	Helitrim
R10	330	189205	RC07GF331J
R11	750	189487	RC07GF751J
R12	3.9K	189224	RC07GF392J
R13	10K	189227	RC07GF103J
R14	6.2K	89200-5	RC07GF622J
R15,R16	10K	189227	RC07GF103J
R17	100	189202	RC07GF101J
R18	270	189485	RC07GF271J
R19 (Optional)	1.2K	189221	RC07GF122J
R20	5.6K	189226	RC07GF562J
R21	1.6K	189481-59	RC07GF162J
R22	1K	189220	RC07GF101J
R23	10	189231	RC07GF100J
R24	2.26K, 1/8W, 1%	88541-63	RN55D2R26F
R25	100	189202	RC07GF101J
R26	620	189200-10	RC07GF621J
R27	27K	188078	RC07GF273J
	INTEGRATED CIRCUITS		
U1	NE5532	1899975-42	
U2	CA3189	189889-87	
	SHORTING PLUGS		
W1,W2,W3	Shorting Plug	188500-23	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RECEIVER AUDIO DEMODULATOR PWB ASSEMBLY PN 1841576-14 (8.59 MHz/50 μs)			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2	100, 25V	189719-4	Hilton SWT25Z10
C3	1200 pF	189008-84	
C4	100, 25V	189719-4	Hilton SWT25Z10
C5	0.001, 100V	189010-1	
C6,C7	10, 35V	189719-9	Hilton SWT35Z10
C8,C9	0.01, 100V	189010-2	
C10	100 pF	89009-23	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13	10, 35V	189719-9	Hilton SWT35Z10
C14,C15	0.01, 100V	189010-2	
C16	0.001, 100V	189010-1	
C17	0.022, 1%	188214-35	
C18,C19	0.001, 100V	189010-1	
C20,C21	20 pF	89009-28	DM12
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7	Pin	188500-29	Berg
	FILTERS		
FL1	T1	89803-18T1	7KMT1-292BC-2153F(8.59)
FL1	T2	89803-18T2	7KMT2-292BC-2154EQB(8.59)
FL1	T3	89803-18T3	7KMT3-292BC-2155F(8.59)
FL2	Optional	TBD	
	CONNECTORS		
J1	Receptacle	188500-31	Berg
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L3	27	189169-96	Delevan 1025-54
L4	5.6	189169-83	Delevan 1025-38
L5	7-1/2T (Violet) Unshielded	189162-84	Coilcraft T7-142
	TRANSISTORS		
Q1	2N3904	189700A	Motorola
Q2	2N3906	189727A	Motorola
Q3	2N3904	189700A	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	274, 1/8W, 1%	189256-35	RN55D274RF
R2	24	189238-20	RC07GF240J
R3	100K, 1/8W, 1%	189330	RN55D1004RF
R4	10K, 1/8W, 1%	189326	RN55D1003RF
R5	90.9K, 1/8W, 1%	189328	RN55D90R09F
R6	274, 1/8W, 1%	189256-35	RN55D274RF
R7	24	189238-20	RC07GF240J
R8	910	189200-19	RC07GF911J
R9	Potentiometer, 5K	188453-92	Helitrim
R10	330	189205	RC07GF331J
R11	750	189487	RC07GF751J
R12	4.3K	189481-39	RC07GF433J
R13	10K	189227	RC07GF103J
R14	6.2K	89200-5	RC07GF622J
R15,R16	10K	189227	RC07GF103J
R17	100	189202	RC07GF101J
R18	270	189485	RC07GF271J
R19 (Optional)	1.2K	189221	RC07GF122J
R20	5.6K	189226	RC07GF562J
R21	1.6K	189481-59	RC07GF162J
R22	1K	189220	RC07GF101J
R23	10	189231	RC07GF100J
R24	2.26K, 1/8W, 1%	88541-63	RN55D2R26F
R25	100	189202	RC07GF101J
R26	620	189200-10	RC07GF621J
R27	27K	188078	RC07GF273J
	INTEGRATED CIRCUITS		
U1	NE5532	1899975-42	
U2	CA3189	189889-87	
	SHORTING PLUGS		
W1,W2,W3	Shorting Plug	188500-23	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RECEIVER AUDIO DEMODULATOR PWB ASSEMBLY PN 1841576-15 (5.8 MHz/75 μs)			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2	100, 25V	189719-4	Hilton SWT25Z10
C3	1200 pF	189008-84	
C4	100, 25V	189719-4	Hilton SWT25Z10
C5	0.001, 100V	189010-1	
C6,C7	10, 35V	189719-9	Hilton SWT35Z10
C8,C9	0.01, 100V	189010-2	
C10	100 pF	89009-23	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13	10, 35V	189719-9	Hilton SWT35Z10
C14,C15	0.01, 100V	189010-2	
C16	0.001, 100V	189010-1	
C17	0.022, 1%	188214-35	
C18,C19	0.001, 100V	189010-1	
C20,C21	20 pF	89009-28	DM12
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7	Pin	188500-29	Berg
	FILTERS		
FL1	T3	89803-13T3	Toko 7VST 237BX-1614(5.8)
FL2	Optional	TBD	
	CONNECTORS		
J1	Receptacle	188500-31	Berg
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L1,L2	33	189169-84	Delevan 1025-56
L3	39	189169-94	Delevan 1025-58
L4	8.2	189169-95	Delevan 1025-42
L5	12-1/2T (Red) Unshielded	189162-83	Coilcraft T7-143
	TRANSISTORS		
Q1	2N3904	189700A	Motorola
Q2	2N3906	189727A	Motorola
Q3	2N3904	189700A	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	274, 1/8W, 1%	189256-35	RN55D274RF
R2	24	189238-20	RC07GF240J
R3	100K, 1/8W, 1%	189330	RN55D1004RF
R4	10K, 1/8W, 1%	189326	RN55D1003RF
R5	90.9K, 1/8W, 1%	189328	RN55D90R09F
R6	274, 1/8W, 1%	189256-35	RN55D274RF
R7	24	189238-20	RC07GF240J
R8	910	189200-19	RC07GF911J
R9	Potentiometer, 5K	188453-92	Helitrim
R10	330	189205	RC07GF331J
R11	910	189200-19	RC07GF911J
R12	3K	189490	RC07GF301J
R13	10K	189227	RC07GF103J
R14	6.2K	89200-5	RC07GF622J
R15,R16	10K	189227	RC07GF103J
R17	100	189202	RC07GF101J
R18	270	189485	RC07GF271J
R19 (Optional)	1.2K	189221	RC07GF122J
R20	5.6K	189226	RC07GF562J
R21	1.6K	189481-59	RC07GF162J
R22	1K	189220	RC07GF101J
R23	10	189231	RC07GF100J
R24	3.4K, 1/8W, 1%	189327-81	RN55D3R40F
R25	100	189202	RC07GF101J
R26	620	189200-10	RC07GF621J
R27	27K	188078	RC07GF273J
	INTEGRATED CIRCUITS		
U1	NE5532	1899975-42	
U2	CA3189	189889-87	
	SHORTING PLUGS		
W1,W2,W3	Shorting Plug	188500-23	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RECEIVER AUDIO DEMODULATOR PWB ASSEMBLY PN 1841576-16 (5.8 MHz/50 μs)			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2	100, 25V	189719-4	Hilton SWT25Z10
C3	1200 pF	189008-84	
C4	100, 25V	189719-4	Hilton SWT25Z10
C5	0.001, 100V	189010-1	
C6,C7	10, 35V	189719-9	Hilton SWT35Z10
C8,C9	0.01, 100V	189010-2	
C10	100 pF	89009-23	DM12
C12	Variable, 3.2-18 pF	189017-29	Matsushita
C13	10, 35V	189719-9	Hilton SWT35Z10
C14,C15	0.01, 100V	189010-2	
C16	0.001, 100V	189010-1	
C17	0.022, 1%	188214-35	
C18,C19	0.001, 100V	189010-1	
C20,C21	20 pF	89009-28	DM12
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7	Pin	188500-29	Berg
	FILTERS		
FL1	T3	89803-13T3	Toko 7VST 237BX-1614(5.8)
FL2	Optional	TBD	
	CONNECTORS		
J1	Receptacle	188500-31	Berg
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L1,L2	33	189169-84	Delevan 1025-56
L3	39	189169-94	Delevan 1025-58
L4	8.2	189169-95	Delevan 1025-42
L5	12-1/2T (Red) Unshielded	189162-83	Coilcraft T3-142
	TRANSISTORS		
Q1	2N3904	189700A	Motorola
Q2	2N3906	189727A	Motorola
Q3	2N3904	189700A	Motorola

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	274, 1/8W, 1%	189256-35	RN55D274RF
R2	24	189238-20	RC07GF240J
R3	100K, 1/8W, 1%	189330	RN55D1004RF
R4	10K, 1/8W, 1%	189326	RN55D1003RF
R5	90.9K, 1/8W, 1%	189328	RN55D90R09F
R6	274, 1/8W, 1%	189256-35	RN55D274RF
R7	24	189238-20	RC07GF240J
R8	910	189200-19	RC07GF911J
R9	Potentiometer, 5K	188453-92	Helitrim
R10	330	189205	RC07GF331J
R11	910	189200-19	RC07GF911J
R12	3K	189490	RC07GF301J
R13	10K	189227	RC07GF103J
R14	6.2K	89200-5	RC07GF622J
R15,R16	10K	189227	RC07GF103J
R17	100	189202	RC07GF101J
R18	270	189485	RC07GF271J
R19 (Optional)	1.2K	189221	RC07GF122J
R20	5.6K	189226	RC07GF562J
R21	1.6K	189481-59	RC07GF162J
R22	1K	189220	RC07GF101J
R23	10	189231	RC07GF100J
R24	2.26K, 1/8W, 1%	88541-63	RN55D2R26F
R25	100	189202	RC07GF101J
R26	620	189200-10	RC07GF621J
R27	27K	188078	RC07GF273J
	INTEGRATED CIRCUITS		
U1	NE5532	1899975-42	
U2	CA3189	189889-87	
	SHORTING PLUGS		
W1,W2,W3	Shorting Plug	188500-23	

RECEIVER POWER SUPPLY ASSEMBLY PN 1841570-3

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	Power Supply PWB Assembly	1841554-3	MAC
	Transformer	845103-1	MAC
	Bracket	1841571-1	MAC
	Connector, Filtered, AC Line	90025-1	MAC
CR1,CR3	Bridge Rectifier, BR-66	189439-40	
	Lug, Solder	88520-28	
	Fuses		
	1A Slo-Blo	188200-7	
	0.5A Slo-Blo (Optional)	188200-27	
	Heatsink	842117-1	MAC
	Heatsink Without Slot	842117-2	MAC
	ID Label	1842069-1	MAC

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RECEIVER POWER SUPPLY PWB ASSEMBLY PN 1841554-3			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2,C3	4700, 35V	189719-56	
	DIODES		
CR2	Rectifier Bridge BR-66	189439-40	
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7,E8,E9, E10,E11,E12,E13,E14,E15, E16,E17,E18	Bifurcated	184844-33	
	FUSES		
F1,F2	AGX-3, 125V, 3A	88200-30	
F3	AGX-2½, 125V, 2.5A	88200-31	
	CONNECTORS		
J1	Pin	188500-29	Berg 75401
	JUMPERS		
W1	White #22 AWG, Kynar	188328-7	
W2,W3	White #18 AWG, Kynar	88198-11	

IF FILTER-EQUALIZER PWB ASSEMBLY PN 844433-1

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	Variable 2.8-10 pF	189087-28	
C3	43 pF	89009-26	DM12
C4	20 pF	89009-28	DM12
C5	18 pF, 1%	89009-50	DM12
C6	Variable, 1.5-4 pF	189100-29	
C7	18 pF, 1%	89009-50	DM12
C8	100 pF	89009-23	DM12
C9	18 pF, 1%	89009-50	DM12
C10	Variable, 1.5-4 pF	189100-29	
C11	100 pF	89009-23	DM12
C12	0.001	89010-1	
C13	120 pF	89009-41	DM12
C14	5 pF	89009-27	DM12
C15	15 pF	89009-29	DM12
C16	5 pF	89009-27	DM12
C17	Variable, 1.5-4 pF	189100-29	
C18	0.001	89010-1	
C19	10, 35V	189719-9	
C20	0.001	89010-1	
C21	0.1	89010-4	
C22	0.01	89010-2	
C23	330 pF	89009-58	DM12
	TERMINALS		
E1,E2,E3,E4	Pins	88500-29	
	CONNECTORS		
J1,J2	R/A F	89397-18	
J3	4 Pin R/A	89351-34	Molex
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L1,L2,L3,L4	2-1/2T Shielded	89162-31	T7-142
L5,L6	4-1/2T Shielded	89162-37	T7-142
L7	0.82	89169-6	Delevan 1025-14
L8	2-1/2T Unshielded	89162-44	T7-150
L9	Inductor	89169-37	Ferroxcube VK200
L10	4-1/2T Unshielded	89163-11	T7-150
L11	0.82	89169-6	Delevan 1025-14

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	18	89476	RC07GF180J
R2	47	89201	RC07GF470J
R3	180	89200-3	RC07GF181J
R4	18	89476	RC07GF180J
R5	62	89481-18	RC07GF620J
R6	5.1	89238-45	RC07GF512J
R7	24	89238-20	RC07GF240J
R8	100	89202	RC07GF101J
R9,R10	62	89481-18	RC07GF620J
	INTEGRATED CIRCUITS		
U1,U2	MSA0304	89888-82	
	SHORTING JACKS		
W1	Shorting Jack	88500	

REF DES	DESCRIPTION	QTY	
RECEIVER CONTROL ACCESSORY KIT PN 842456-1			
	Power Cord	88305-52	1
	Fuse		
	1A Slo-Blo	88200-7	2
	2A AGC	88200-2	2
	0.5 AGC	88203	2

SECTION 7
RF BOX ASSEMBLY DIAGRAMS/PARTS LISTS

LIST OF DIAGRAMS

Figure 7-1. RF Box Assembly PN 1841478 7-3
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Figure 7-3. RFI Filter PN 1841720-1 Component Location/Schematic Diagram ... 7-9
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Figure 7-5. RX Mixer/Oscillator/Preamplifier Assembly PN 842870 7-12
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Figure 7-8. Temperature Control Board PN 842744-1 Component Location/Schematic Diagram . 7-17
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Figure 7-11. 140 MHz IF Amplifier Wiring Harness PN1841879-1 7-21
Figure 7-12. Power Wiring Harness PN 1841722-1 7-21
Figure 7-13. Mixer/Oscillator Wiring Harness PN 842869-1 7-22
Figure 7-14. F(M) to F(M) Cable Assembly PN 1840164 7-23

LIST OF PARTS LISTS

1. RF Box Assembly
   PN 1841478-1 (Duplex) 7-24
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   PN 1841478-3 (RX Simplex) 7-26
2. Voltage Regulator Board
   PN 1841788-1 (RX) 7-27
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3. RFI Board PWB Assembly
   PN 1841720-1 7-31
4. Mixer/Oscillator/Preamplifier Assembly
   PN 842870 7-32
5. 140 MHz IF Filter/Preamplifier PWB Assembly
   PN 1841936-1 7-33
6. Temperature Control PWB Assembly
   PN 1842744-1 7-35
7. 140 MHz IF Amplifier PWB Assembly
   PN 843901-1 7-36

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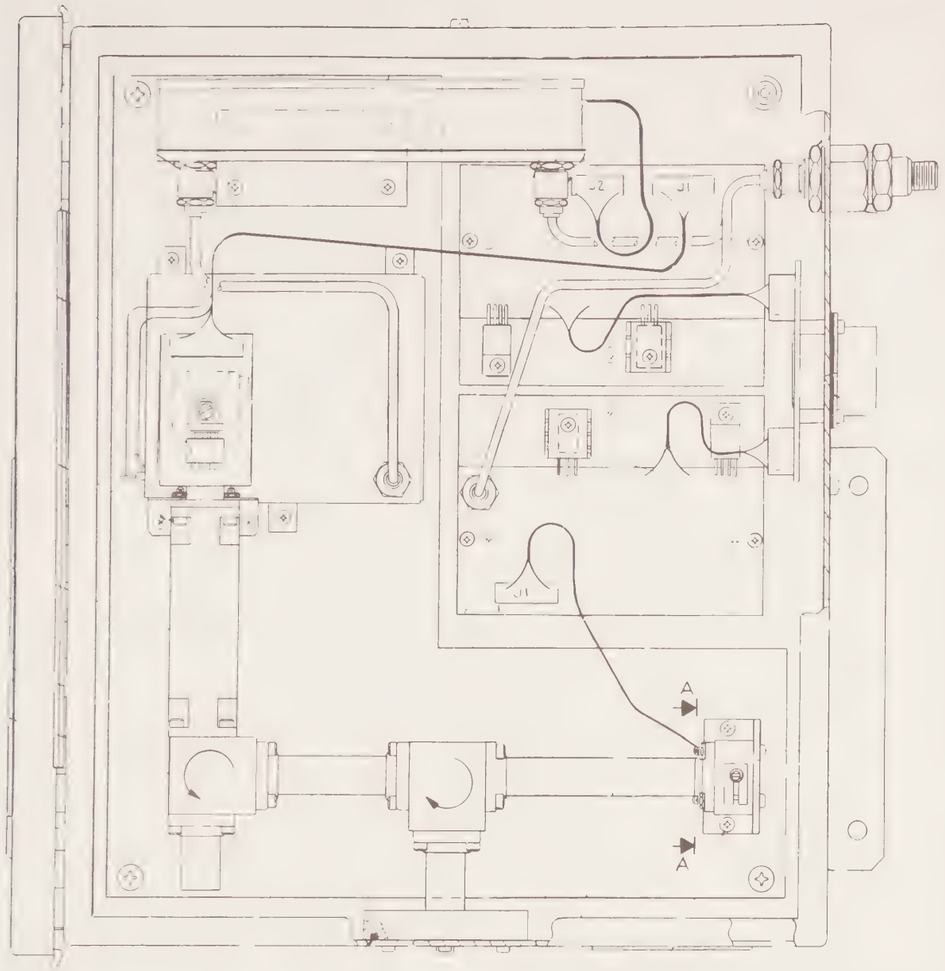
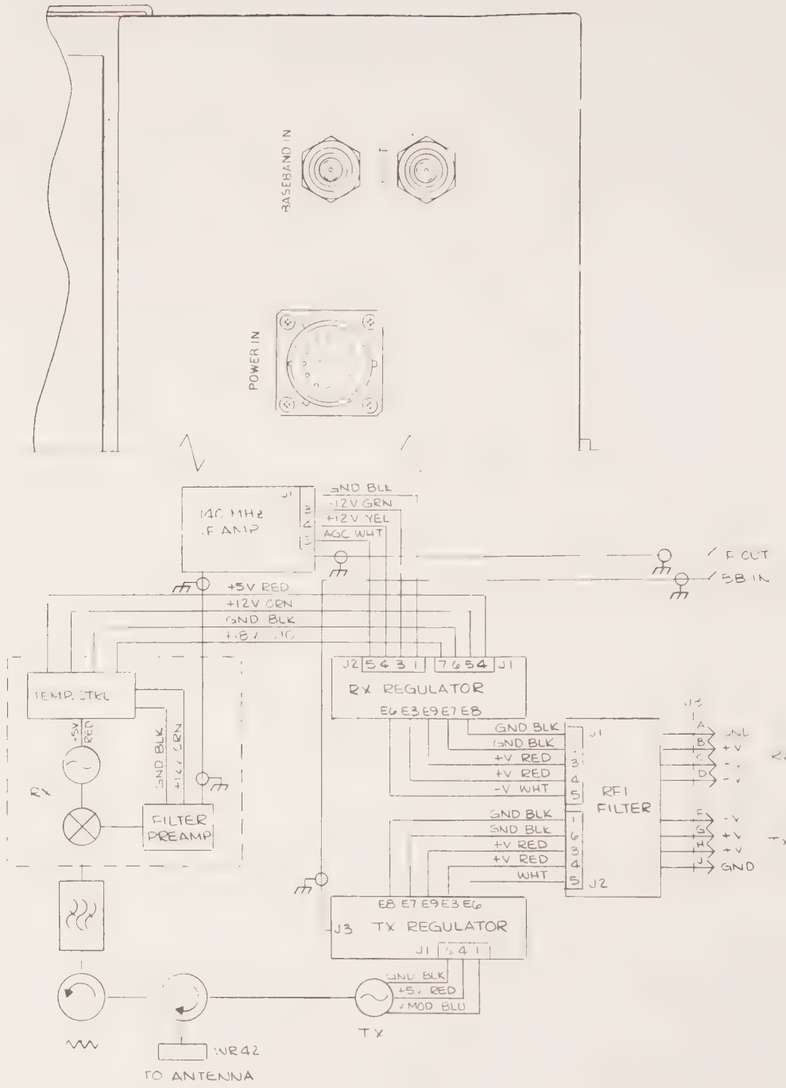
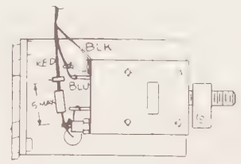




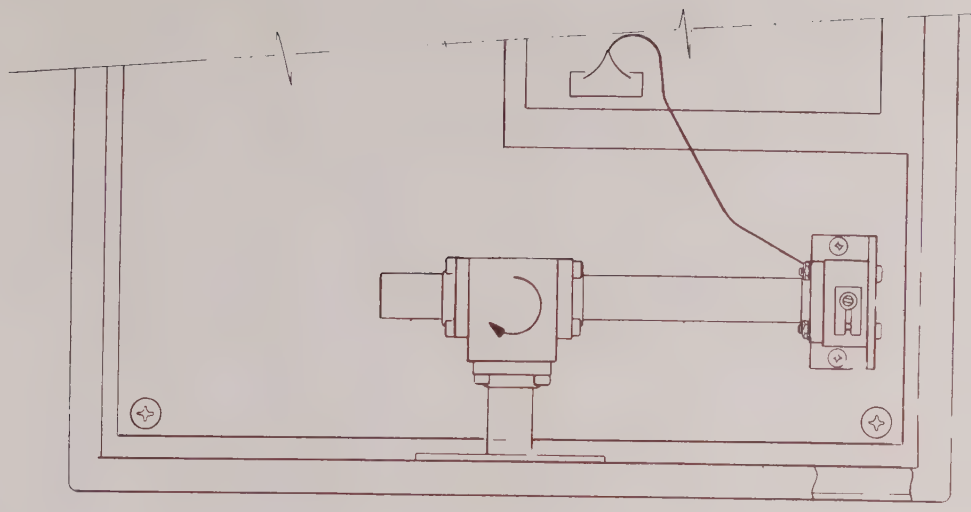
NOTES:

1. FOR TEST PROCEDURE SEE TP 00728
2. FOR FREQUENCY OPTIONS SEE TABLES I & II ON SHT 2.
3. SEE SHEET 2 FOR G2 & G3 (SIMIPLEX) CONFIGURATIONS.

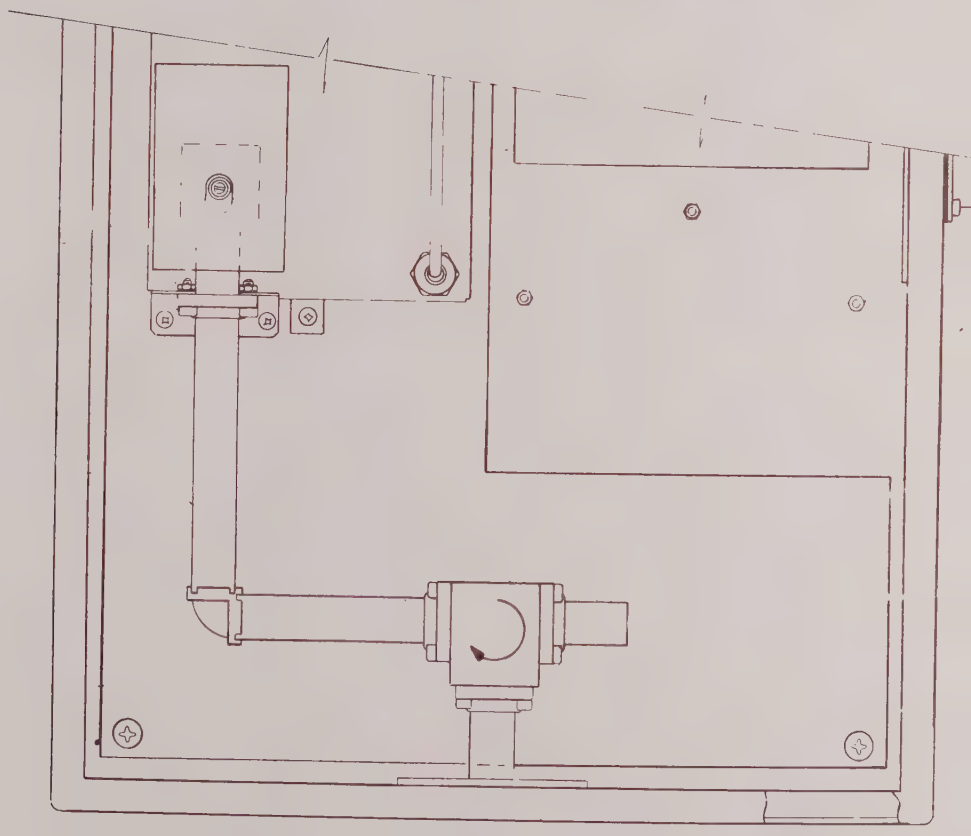


VIEW A-A
TX SOURCE WIRING
SCALE: FULL

Figure 7-1. RF Box Assembly PN 1841478 (Sheet 1 of 2)



G2 DETAIL – TX SIMPLEX



G3 DETAIL – RX SIMPLEX

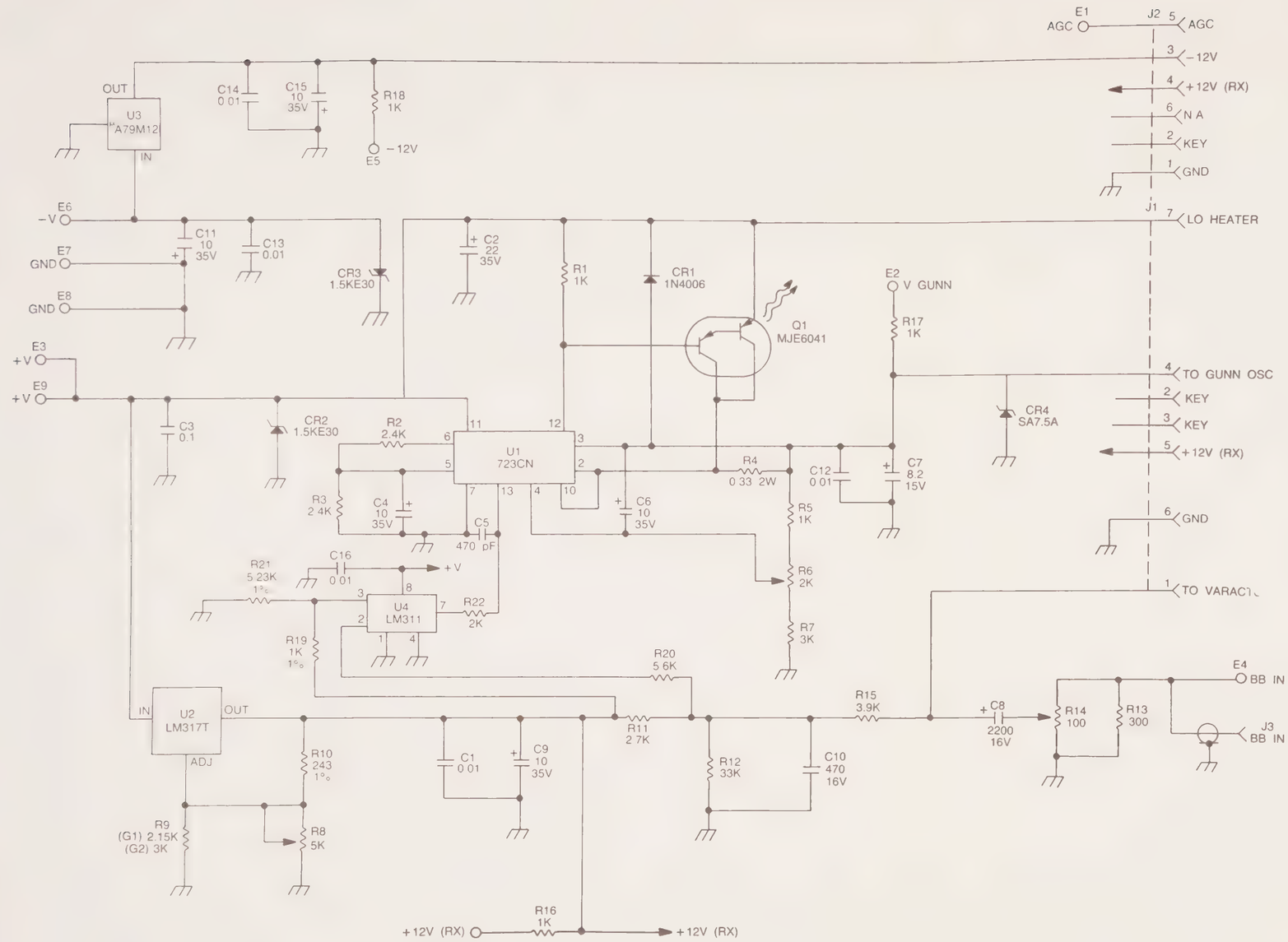
TABLE I TX

FREQ. BANDS (GHz)	SOURCE (ITEM 9)	
21.2 - 21.4	1840242 - 3	
21.4 - 21.6	- 4	
21.6 - 21.8	- 5	
21.8 - 22.0	- 1	
22.0 - 22.2	- 9	
22.2 - 22.4	- 10	
22.4 - 22.6	- 6	
22.6 - 22.8	- 7	
22.8 - 23.0	- 8	
23.0 - 23.2	- 2	
23.2 - 23.4	- 11	
23.4 - 23.6	1840242 - 12	

TABLE II RX

FREQ. BANDS (GHz)	MIXER/OSC (ITEM 18)	FILTER (ITEM 6)
21.2 - 21.4	842870 - 5	1841726 - 1
21.4 - 21.6	- 6	- 1
21.6 - 21.8	- 7	- 1
21.8 - 21.9	- 3	- 3
21.9 - 22.0	- 1	- 3
22.0 - 22.2	- 11	- 3
22.2 - 22.4	- 12	- 3
22.4 - 22.6	- 8	- 2
22.6 - 22.8	- 9	- 2
22.8 - 23.0	- 10	- 2
23.0 - 23.1	- 4	- 4
23.1 - 23.2	- 2	- 4
23.2 - 23.4	- 13	- 4
23.4 - 23.6	842870 - 14	1841726 - 4

Figure 7-1. RF Box Assembly PN 1841478
(Sheet 2 of 2)



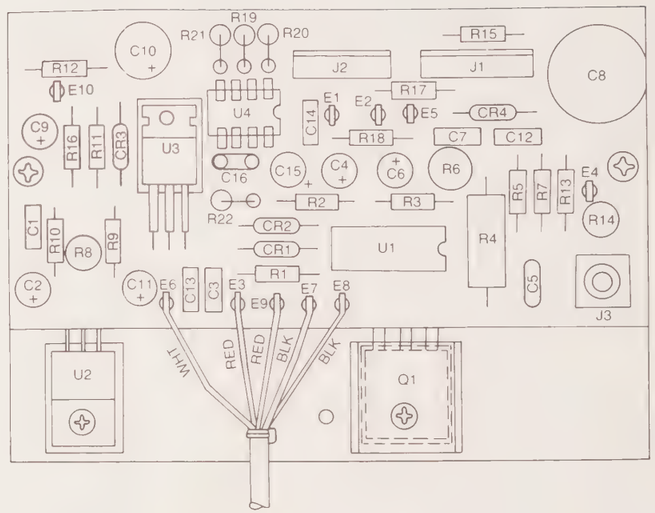
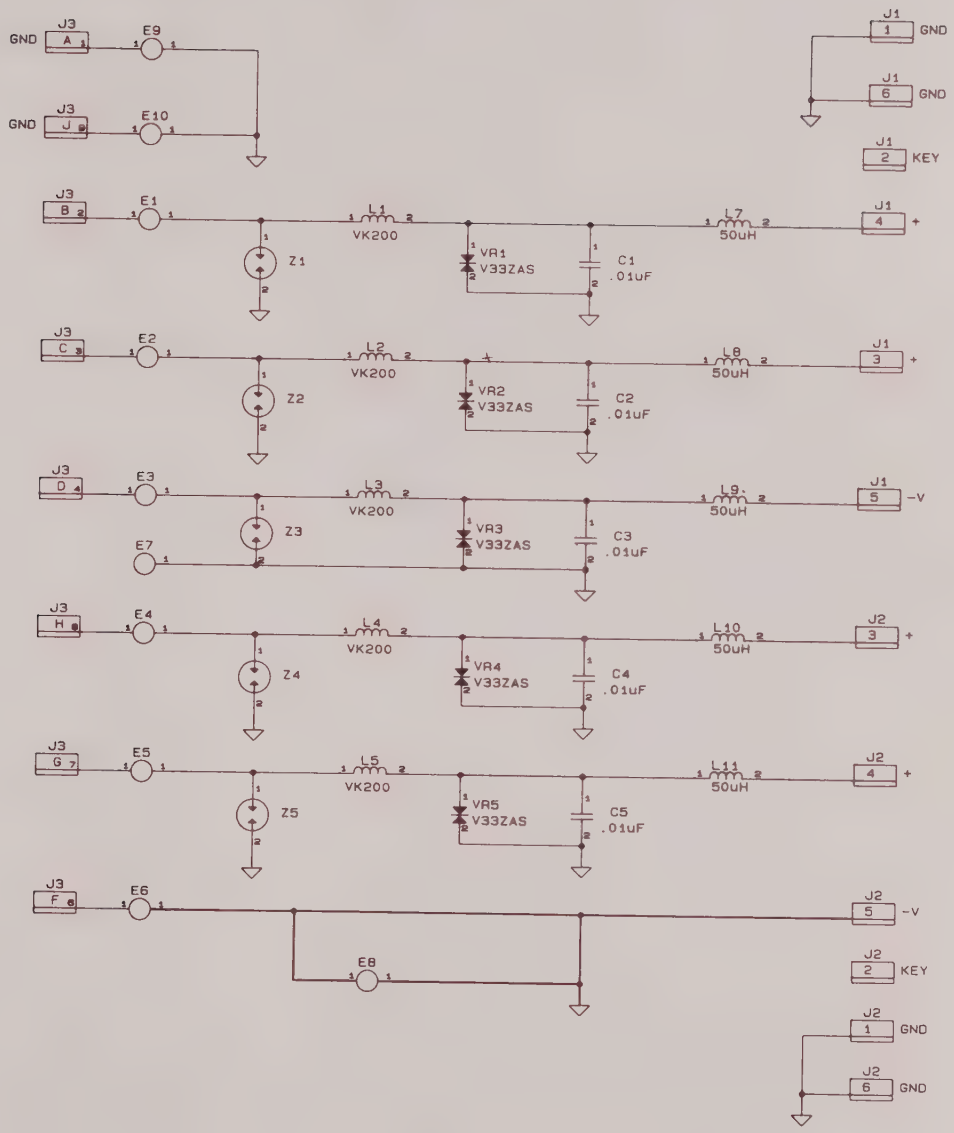


Figure 7-2. TX/RX Regulator PN 1841788 – Component Location/Schematic Diagram


GND
J3
A
E9
GND
J3
J
E10
J1
1
GND
J1
6
GND
J1
2
KEY
J3
B
E1
L1
VK200
L7
50uH
J1
4
+
Z1
VR1
V33ZAS
C1
.01uF
J3
C
E2
L2
VK200
L8
50uH
J1
3
+
Z2
VR2
V33ZAS
C2
.01uF
J3
D
E3
L3
VK200
L9
50uH
J1
5
-V
Z3
VR3
V33ZAS
C3
.01uF
E7
J3
H
E4
L4
VK200
L10
50uH
J2
3
+
Z4
VR4
V33ZAS
C4
.01uF
J3
G
E5
L5
VK200
L11
50uH
J2
4
+
Z5
VR5
V33ZAS
C5
.01uF
J3
F
E6
J2
5
-V
E8
J2
2
KEY
J2
1
GND
J2
6
GND

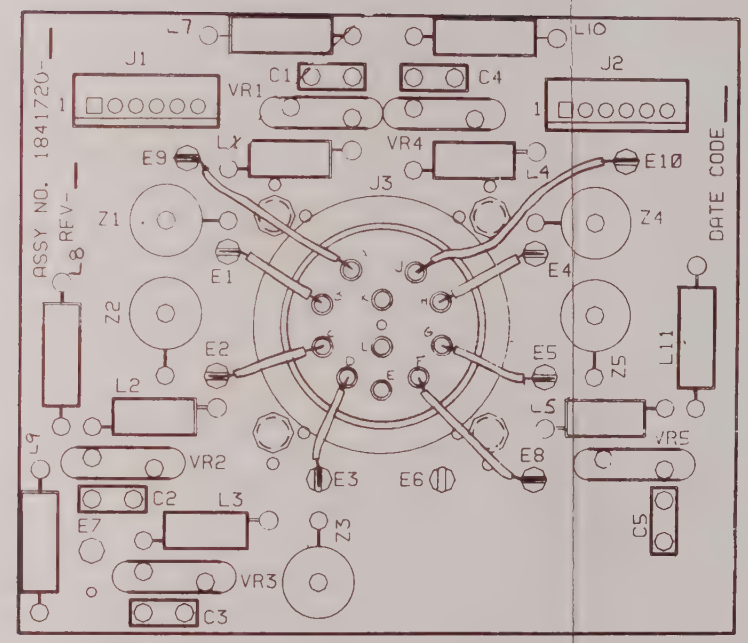


Figure 7-3. RFI Filter PN 1841720-1 – Component Location/Schematic Diagram

CAUTION
Be extremely careful. Do not turn adjustment screw more than ± 1/2 turn.

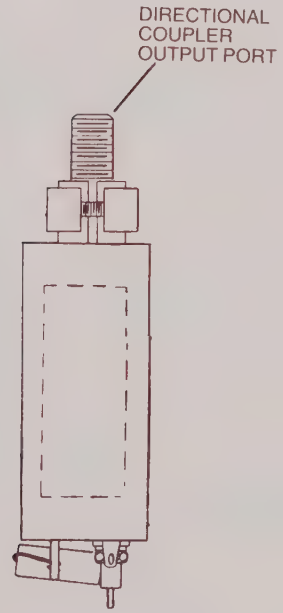


Figure 7-4. Transmitter Gunn Source Assembly PN 1840242

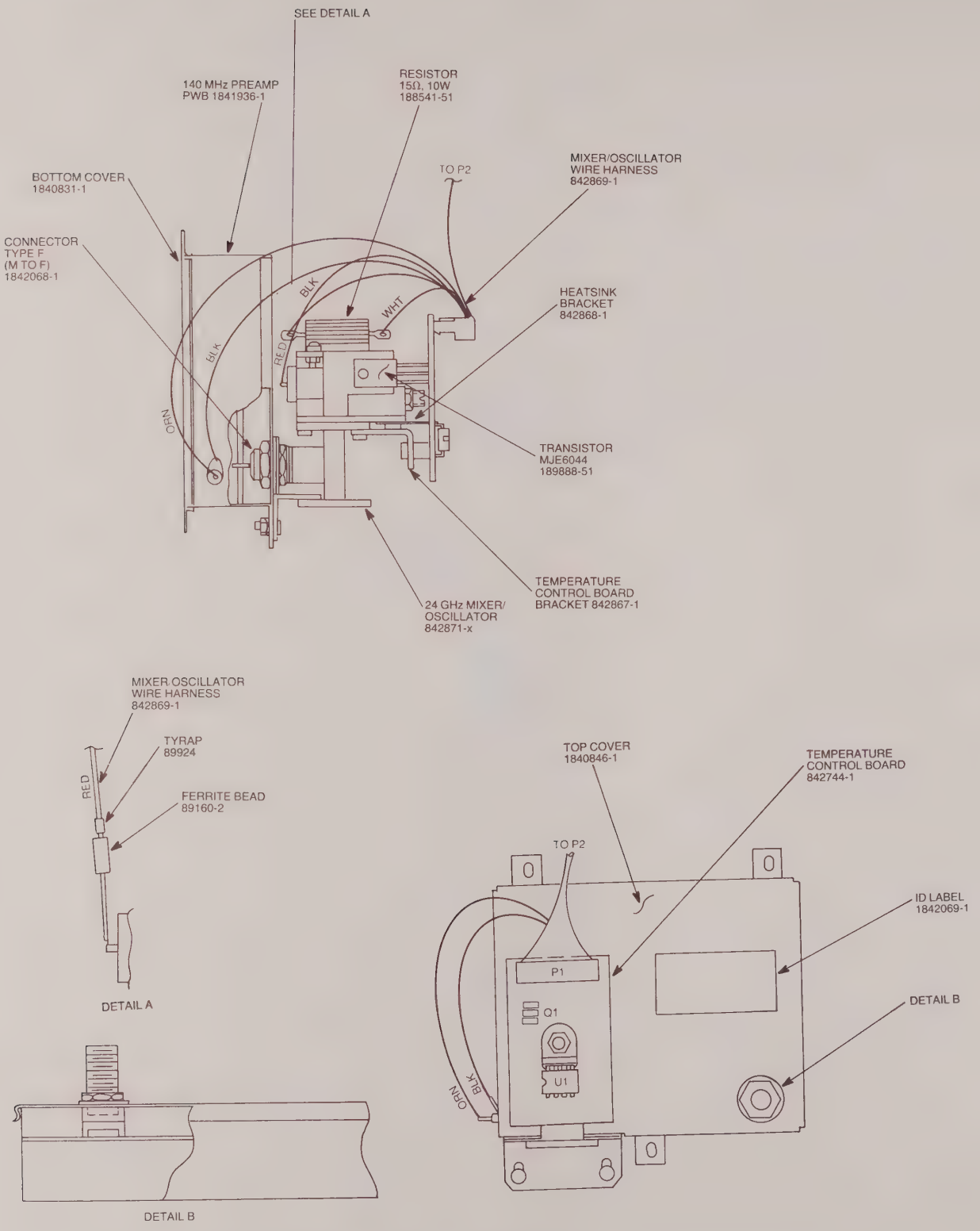


Figure 7-5. Receiver Mixer/Oscillator/Preamplifier Assembly PN 842870

CAUTION
Be extremely careful. Do not turn adjustment screw more than ± 1/2 turn.

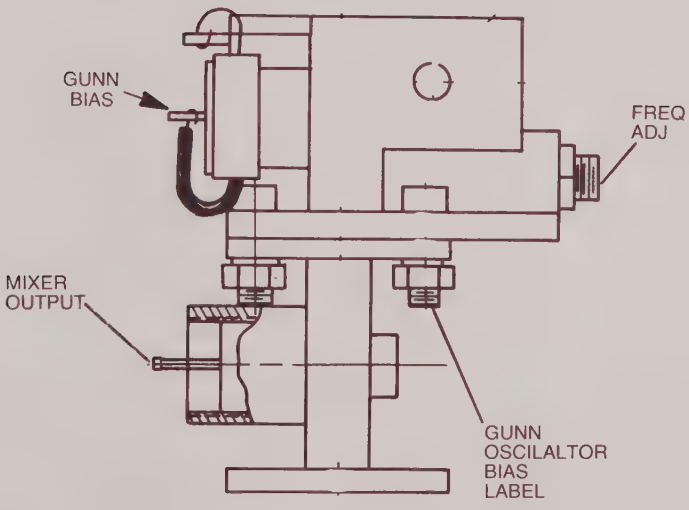


Figure 7-6. 23 GHz Mixer/Oscillator Assemby PN 842871

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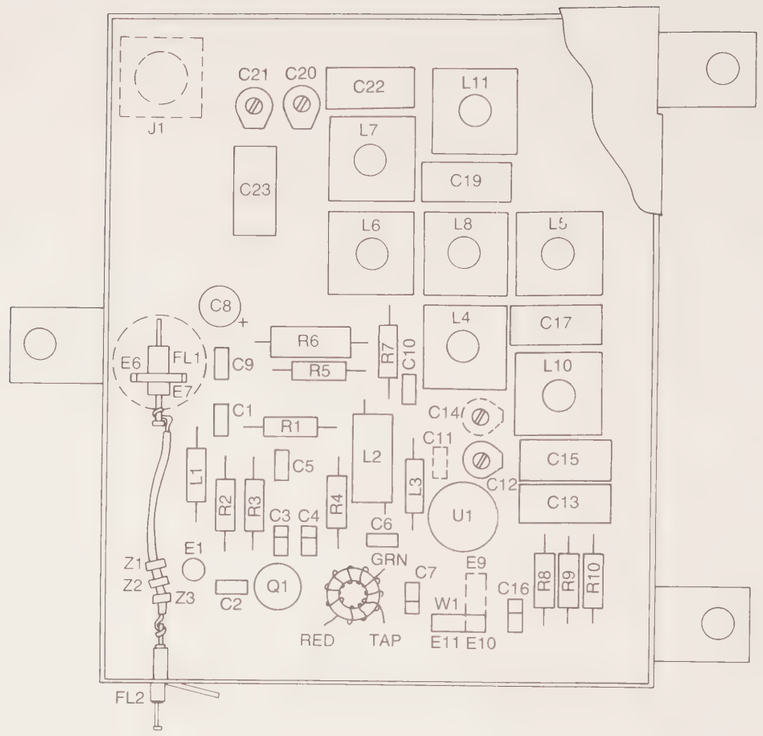


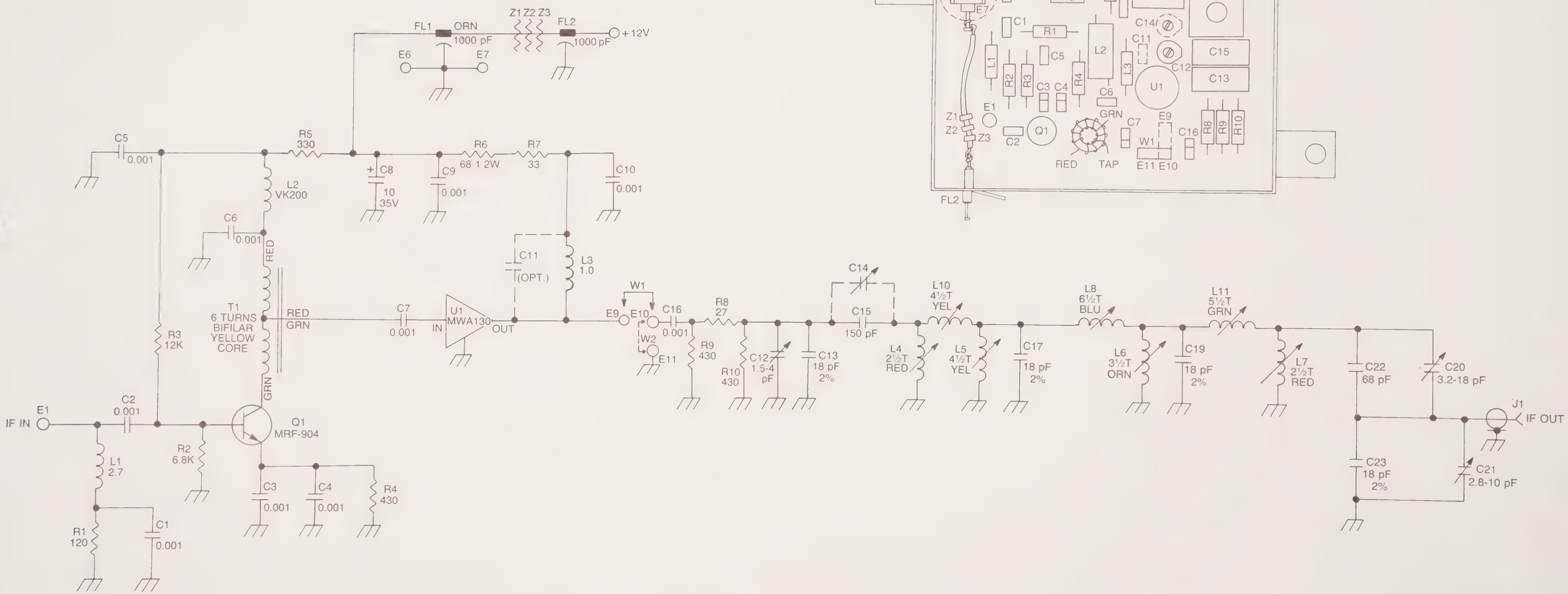
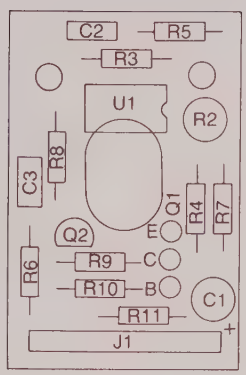


Figure 7-7. 140 MHz IF Filter/Preamplifier
PN 1841936-1 – Component Location/
Schematic Diagram



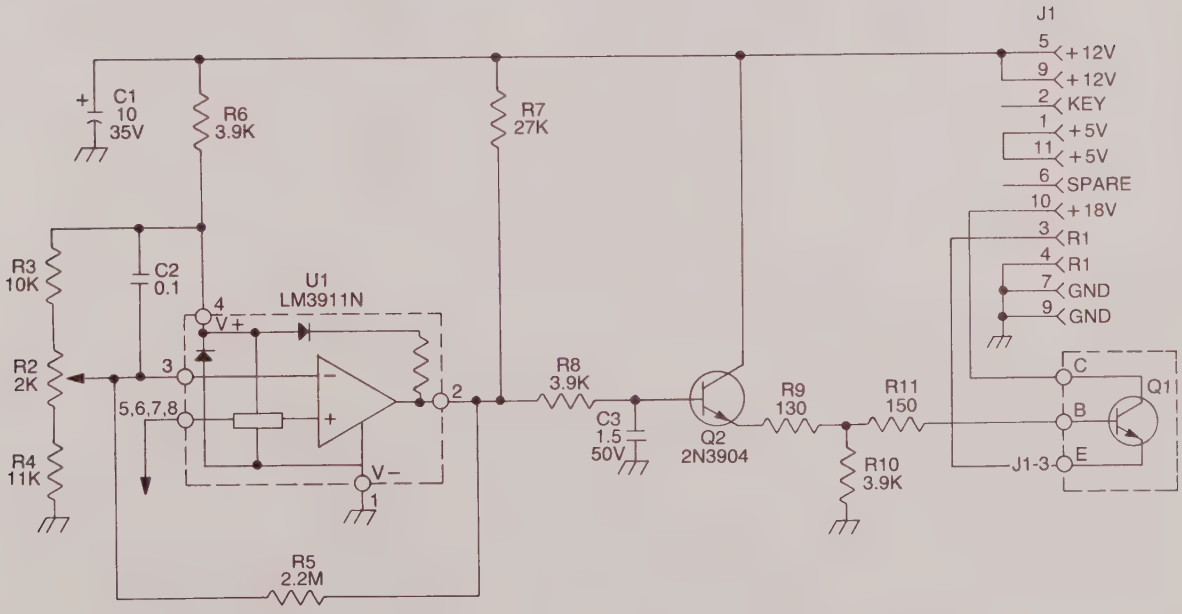


Figure 7-8. Temperature Control Board PN 842744-1 –
Component Location/Schematic Diagram

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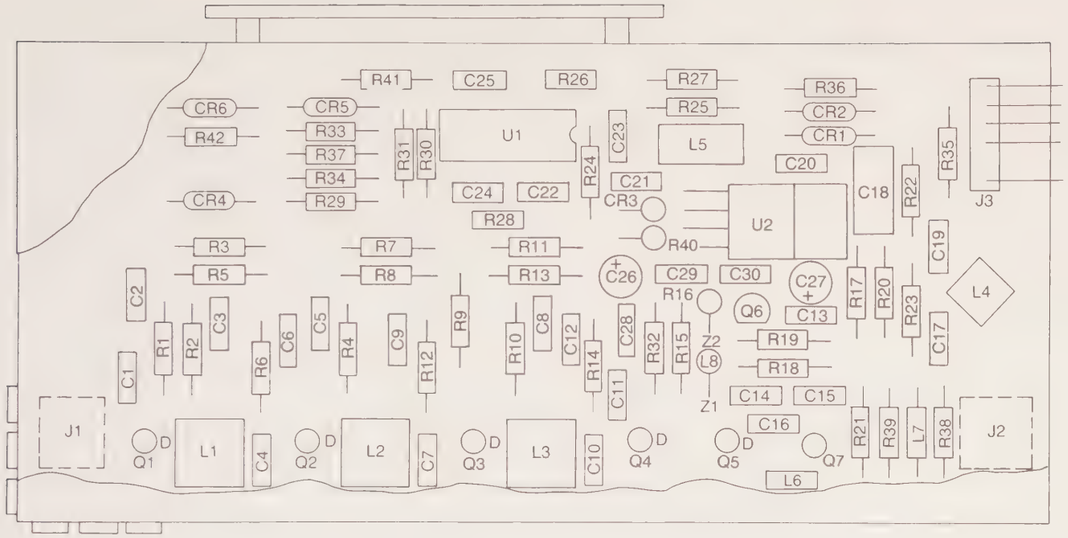

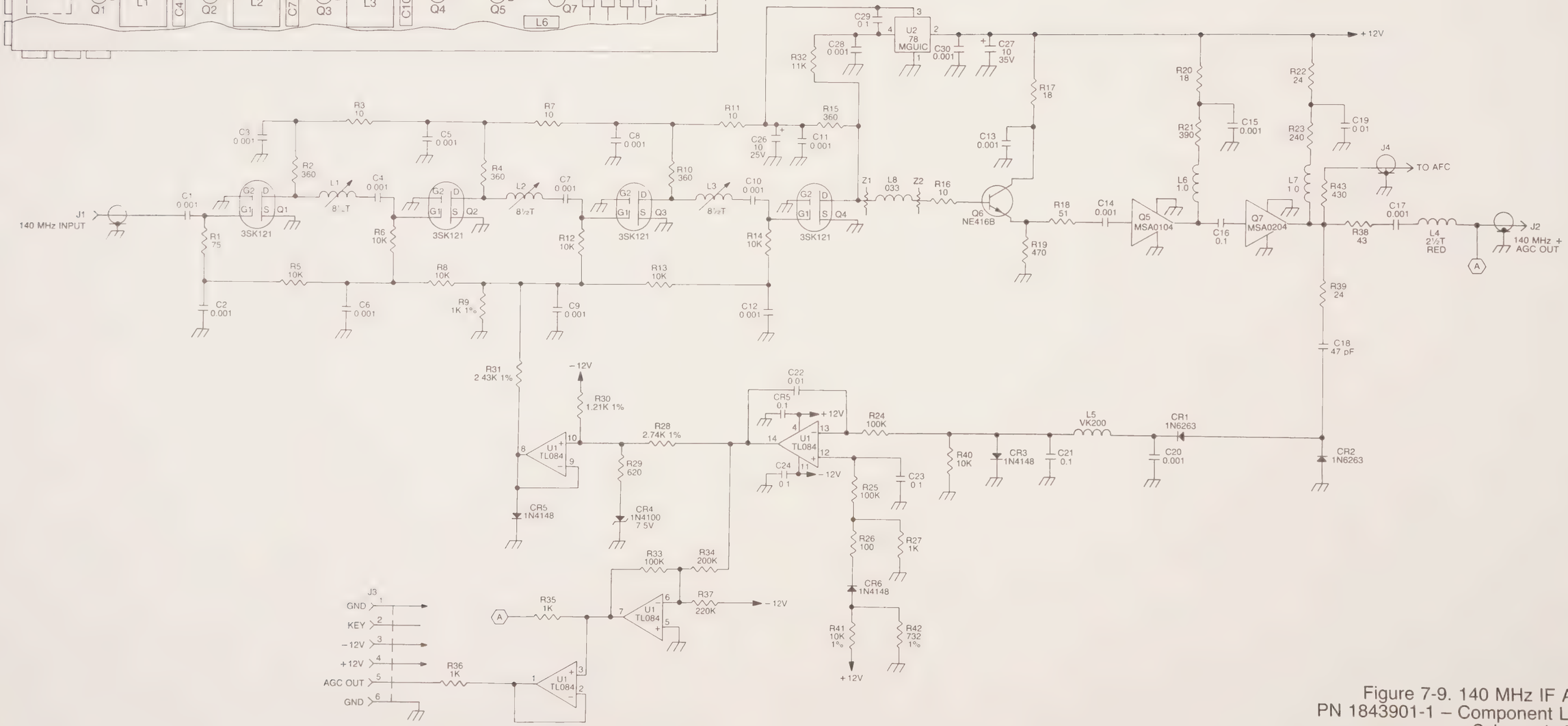

Figure 7-9. 140 MHz IF Amplifier PN 1843901-1 – Component Location/ Schematic Diagram

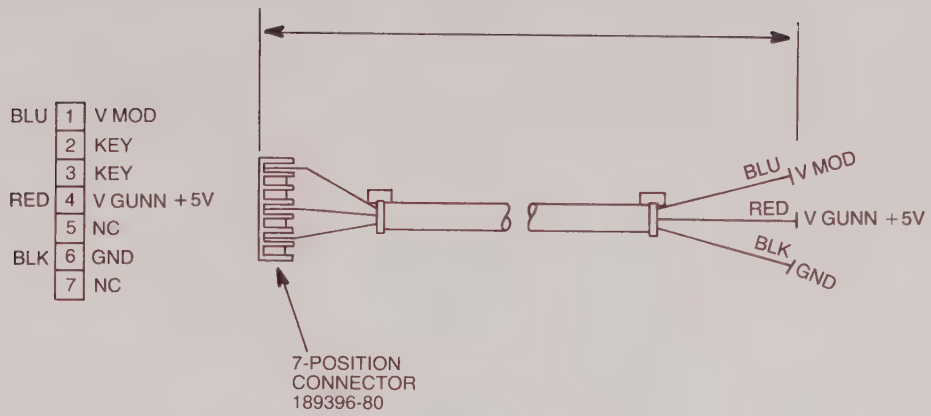

Figure 7-10. Transmitter Wiring Harness PN 1841847-1

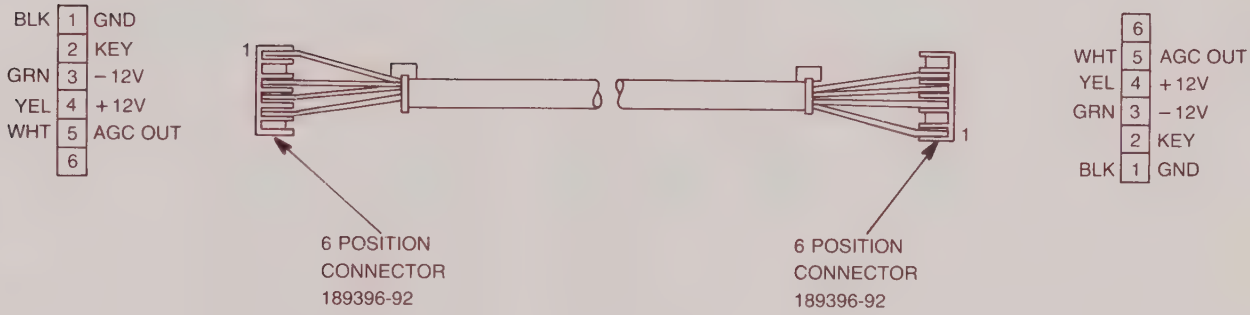

Figure 7-11. 140 MHz IF Amplifier Wiring Harness PN 1841879-1

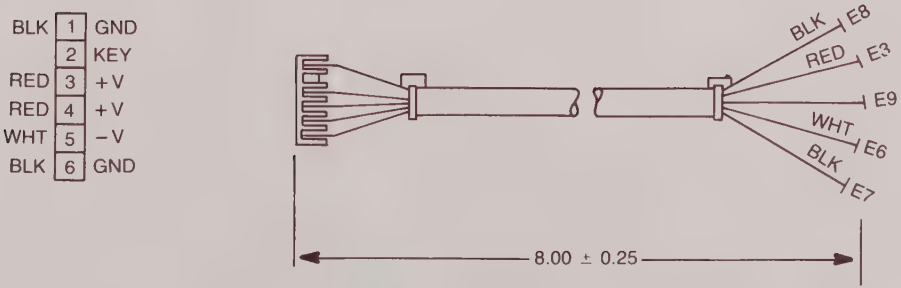

Figure 7-12. Power Wiring Harness PN 1841722-1

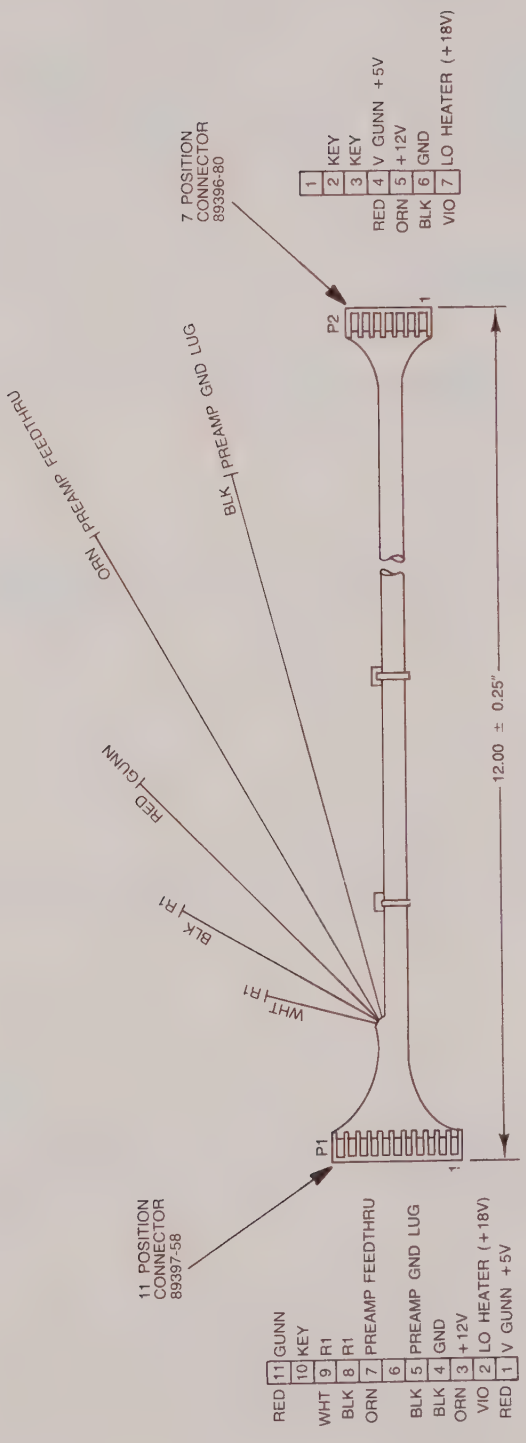

Figure 7-13. Mixer/Oscillator Wiring Harness PN 842869-1

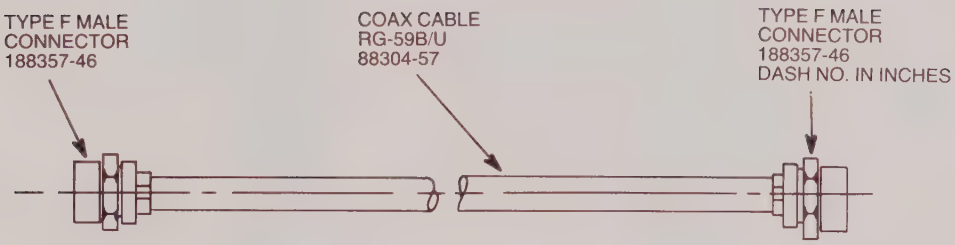

Figure 7-14. F(M) to F(M) Cable Assembly PN 1840164

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RF BOX ASSEMBLY (DUPLEX) PN 1841478-1			
	Regulator PWB Assembly		
	Receiver	1841788-1	MAC
	Transmitter	1841788-2	MAC
	RFI Filter PWB	1841720-1	MAC
	Receiver Mixer/Oscillator/Preamplifier Assy	See Table	MAC
	140 MHz IF Amplifier PWB Assembly	1843901-1	MAC
	Housing	1841479-1	MAC
	RF Assembly Mounting Plate	1841474-1	MAC
	Waveguide Assembly		
	WR-42	1841727-1	MAC
	WR-42 3.00" Lg)	1841727-2	MAC
	Interface	CD90010-1	MAC
	Circulator	1841724-1	MAC
	Termination	1841725-1	MAC
	Filter	See Table	MAC
	TX Source	See Table	MAC
	TX Source Bracket	1841781-1	MAC
	Wire Harness Assembly	1841847-1	MAC
	IF Amplifier Wire Harness Assembly	1841879-1	MAC
	O-Ring	188443-76	
	Connector, 11 Pin Receptacle	188358-93	
	Gasket #18 Shell	188358-64	
	Gasket, Neoprene w/Monel Shielding	89991-1	
	Cable Assemblies		
	F(M) to F(M)	1840164-9	MAC
	F(M) to F(M)	1840164-7	MAC
	Adapters		
	Pin Type to F	189397-14	Gilbert G-CH-BAFF-KS
	F to KS	1842038-1	Gilbert GF-625-CH
	Labels		
	FCC Data	1842060-1	MAC
	Cond. Warning	843527-1	MAC
	Stat Sense (Orn/Blk)	MC5585	MAC
	Rubber Tex	189990-63	
	Ferrite Bead	89160-2	
	Spacer	843301-1	MAC
	IF Amplifier Covers		
	Top	1841803-1	MAC
	Bottom	1841803-2	MAC

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RF BOX ASSEMBLY (TX SIMPLEX) PN 1841478-2			
	Transmitter Regulator PWB	1841788-2	MAC
	RFI Filter PWB	1841720-1	MAC
	RF Box, Simplex TX	1841478-298	MAC
	Housing	1841479-1	MAC
	Mounting Plate		
	RF Assembly	1841474-1	MAC
	Waveguide Assembly		
	WR-42	1841727-2	MAC
	Interface	CD90010-1	MAC
	Circulator	1841724-1	MAC
	Termination	1841725-1	MAC
	TX Source	See Table	MAC
	TX Source Bracket	1841781-1	MAC
	Wire Harness Assembly	1841847-1	MAC
	O-Ring	188443-76	
	Connector, 11 Pin Receptacle	188358-93	
	Gasket #18	188358-64	
	Gasket, Neoprene w/Monel Shielding	89991-1	
	Cable Assembly, F(M) to F(M)	1840164-9	MAC
	Adapters		
	Pin Type to F	189397-14	Gilbert G-CH-BAFF-KS
	F to KS	1842038-1	Gilbert GF-625-CH
	Labels		
	FCC Data	1842060-1	MAC
	Cond. Warning	843527-1	MAC
	Stat Sense (Orn/Blk)	MC5585	
	Hole Plug	189990-78	
	Ferrite Bead	89160-2	
	Rubber Tex	189990-63	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RF BOX ASSEMBLY (RX SIMPLEX) PN 1841478-3			
	Receiver Regulator PWB	1841788-1	MAC
	RFI Filter PWB	1841720-1	MAC
	Receiver Mixer/Oscillator/Preamplifier Assy	See Table	MAC
	140 MHz IF Amplifier PWB Assembly	1843901-1	MAC
	Housing	1841479-1	MAC
	Mounting Plate		
	RF Assembly	1841474-1	MAC
	Waveguide Assembly		
	Interface	CD90010-1	MAC
	90° H Bend	1842036-1	MAC
	Circulator	1841724-1	MAC
	Termination	1841725-1	MAC
	IF Amplifier Wire Harness Assembly	1841879-1	MAC
	O-Ring	188443-76	
	Connector, 11 Pin Recp.	188358-93	
	Gasket #18	188358-64	
	Gasket, Neoprene w/Monel Shielding	89991-1	
	Cable Assembly, F(M) to F(M)	1840164-7	MAC
	Adapters		
	Pin Type to F	189397-14	Gilbert G-CH-BAFF-KS
	F to KS	1842038-1	Gilbert GF-625-CH
	Hole Plug	189990-78	
	Spacer	843301-1	MAC
	IF Amplifier Covers		
	Top	1841803-1	MAC
	Bottom	1841803-2	MAC
	Rubber Tex	18990-63	
	Labels		
	FCC Data	1842060-1	MAC
	Cond. Warning	843527-1	MAC
	Stat Sense (Orn/Blk)	MC5585	MAC

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RECEIVER VOLTAGE REGULATOR BOARD PN 1841788-1			
	Power Wire Harness Assembly	1841722-1	MAC
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	0.01, 63V	189010-2	
C2	22, 35V	189139-42	Hilton SWT35Z22
C3	0.1	88212-14	
C4	10, 35V	189719-9	Hilton SWT35Z10
C5	470 pF, 500V, 5%	189008-29	CM05ED471J03
C6	10, 35V	189719-9	Hilton SWT35Z10
C7	8.2, 15V	189765	Kemet
C9,C11	10, 35V	189719-9	Hilton SWT35Z10
C12	0.01, 63V	189010-2	
C13	0.1	88212-14	
C14	0.01, 63V	189010-2	
C15	10, 35V	189719-9	Hilton SWT35Z10
	DIODES		
CR1	1N4006	189440-58	
CR2,CR3	1.5KE30	89438-61	Transorb
CR4	SA7.5A	89438-60	Transorb
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7,E8, E9,E10	Bifurcated	184844-33	
	CONNECTORS		
J1	7 Pin Locking	189354-7	Molex
J2	6 Pin Locking	189354-6	Molex
	TRANSISTORS		
Q1	MJE6041	189888-58	
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	1K	189220	RC07GF101J
R2,R3	2.4K	189489	RC07GF242J
R4	0.33, 2W, 5%	189253-8	
R5	1K	189220	RC07GF101J
R6	Potentiometer, 2K	188453-66	Helitrim
R7	3K	189490	RC07GF301J
R9	2.15K, 1/8W, 1%	89337	RN55D2R15F
R10	243, 1/8W, 1%	89256-75	RN55D243RF
R16,R17,R18	1K	189220	RC07GF101J

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	INTEGRATED CIRCUITS		
U1	723CN	189975-8	
U2	LM317T	89889-62	
U3	μA79M12	189976-92	

TRANSMITTER VOLTAGE REGULATOR BOARD PWB ASSEMBLY PN 1841788-2

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	0.01, 63V	189010-2	
C2	22, 35V	189139-42	Hilton SWT35Z22
C3	0.1	88212-14	
C4	10, 35V	189719-9	Hilton SWT35Z10
C5	470 pF, 500V, 5%	189008-29	CM05ED471J03
C6	10, 35V	189719-9	Hilton SWT35Z10
C7	8.2, 15V	189765	Kemet
C8	2200, 16V	189719-79	
C9	10, 35V	189719-9	Hilton SWT35Z10
C10	470, 16V	189018-26	
C12	0.01, 63V	189010-2	
	DIODES		
CR1	1N4006	189440-58	
CR2	1.5KE30	89438-61	Transorb
CR4	SA7.5A	89438-60	Transorb
	TERMINALS		
E3,E4,E5,E6,E7,E8,E9	Bifurcated	184844-33	
	CONNECTORS		
J1	7 Pin Locking	189354-7	Molex
J2	6 Pin Locking	189354-6	Molex
J3	Type F, PC Mount	189396-48	
	TRANSISTORS		
Q1	MJE6041	189888-58	MAC
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	1K	189220	RC07GF101J
R2,R3	2.4K	189489	RC07GF242J
R4	0.33, 2W, 5%	189253-8	
R5	1K	189220	RC07GF101J
R6	Potentiometer, 2K	188453-66	Helitrim
R7	3K	189490	RC07GF301J
R8	Potentiometer, 5K	88453-63	
R9	3K	89490	RC07GF301J
R10	243, 1/8W, 1%	89256-75	RN55D243RF
R11	2.7K	189181	RC07GF272J
R12	33K	189230	RC07GF333J
R13	300	189486	RC07GF301J
R14	Potentiometer, 100	188453-33	
R15	3.9K	189224	RC07GF392J
R16,R17	1K	189220	RC07GF101J

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	INTEGRATED CIRCUITS		
U1	723CN	189975-8	
U2	LM317T	89889-62	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
RFI BOARD PWB ASSEMBLY PN 1841720-1			
	CAPACITORS		
All capacitors are in microfarads unless otherwise spcified.			
C1,C2,C3,C4,C5	0.01, 100V	189010A-2	
	TERMINALS		
E1,E2,E3,E4,E5,E6,E7,E8,E9,E10	Bifurcated	184844-33	
	CONNECTORS		
J1,J2	6 Pin Lock	189354-6	
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L1,L2,L3,L4,L5	Inductor	189169-37	Ferroxcube VK200-10/3B
L7,L8,L9,L10,L11	50	89168-4	6470-8
	VARISTORS		
VR1,VR2,VR3,VR4,VR5	V33ZAS	89195-8	
	SURGE ARRESTORS		
Z1,Z2,Z3,Z4,Z5	Surge Arrestor	189198-77	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
MIXER/OSCILLATOR/PREAMP ASSEMBLY 842870			
	140 MHz Preamp	1841936-1	MAC
	24 GHz Mixer/Oscillator	See Table	
	Temperature Control PWB Assy	842744-1	MAC
	Wire Harness Assembly	842869-1	MAC
	Brackets		
	Temperature Control Board	842867-1	MAC
	Heatsink	842868-1	MAC
	Support	1840837-1	MAC
	Connector, Type F (M to F)	1842068-1	MAC
	Covers		
	Top	1840846-1	MAC
	Bottom	1840831-1	MAC
	Spacer	843301-2	MAC
Q1	Transistor, MJE 6044	189888-51	
R1	Resistor, 15Ω, 10W	188541-51	Dale
	Label, ID	1842069-1	MAC
	Silpad	188443-63	
	Ferrite Bead	89160-2	

Table 1

FREQUENCY (GHz)	24 GHz MIXER/ OSCILLATOR
21.9 to 22.0	842871-1
23.1 to 23.2	842871-2
21.8 to 21.9	842871-3
23.0 to 23.1	842871-4
21.2 to 21.4	842871-5
21.4 to 21.6	842871-6
21.6 to 21.8	842871-7
22.0 to 22.6	842871-8
22.6 to 22.8	842871-9
22.8 to 23.0	842871-10
22.0 to 22.2	842871-11
22.2 to 22.4	842871-12
23.2 to 23.4	842871-13
23.4 to 23.6	842871-14

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
140 MHz FILTER/PREAMP PWB ASSEMBLY PN 1841936-1			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2,C3,C4,C5,C6,C7	0.001	189007-14	
C8	10, 35V	189719-9	Hilton SWT35Z10
C9,C10	0.001	189007-14	
C11	Optional		
C12	Variable, 1.5-4 pF	189100-29	Blue Dot
C13	18 pF, 2%	89009-50	DM12
C15	150 pF	89009-32	DM12
C16	0.001	189007-14	
C17,C19	18 pF, 2%	89009-50	DM12
C20	Variable, 3.2-18 pF	189017-29	Blue Dot
C21	Variable, 2.8-10 pF	189017-28	Matsushita
C22	68 pF	89009-54	DM12
C23	18 pF, 2%	89009-50	DM12
	TERMINALS		
E9,E10,E11	Pin	188500-29	Berg
	FEEDTHRUS		
FL1,FL2	1000 pF	189017-94	Erie
	CONNECTORS		
J1	Type F, PC Mount	189396-48	
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L1	2.7	189169-7	
L2	Inductor	189169-37	Ferroxcube VK200-10/3B
L3	1	189169-40	
L4	2-1/2T, Red	189162-31	
L5	4-1/2T, Yellow	189162-37	
L6	3-1/2T, Orange	189162-42	
L7	2-1/2T, Red	189162-31	
L8	6-1/2T, Blue	189162-35	
L10	4-1/2T, Yellow	189162-37	
L11	5-/2T, Green	189162-32	
	TRANSISTORS		
Q1	MRF-904	189888-19	
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	120	189203	RC07GF121J
R2	6.8K	189182	RC07GF682J
R3	12K	189492	RC07GF123J

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
R4	430	189238-31	RC07GF431J03
R5	330	189205	RC07GF331J
R6	68, 1/2W, 5%	188012	RC20GF680J
R7	33	189478	RC07GF330J
R8	27	189200	RC07GF270J
R9,R10	430	189238-31	RC07GF431J
	TOROID COILS		
T1	6T, Bifilar, Yellow-Core	1809322-6	MAC
	INTEGRATED CIRCUITS		
U1	MWA-130	189889-72	
	SHORTING PLUGS		
W1	Shorting Plug	188500-23	
	FERRITE BEADS		
Z1,Z2,Z3	Ferrite Bead	189161-20	
	MISCELLANEOUS		
	ID Label	1842069-1	MAC
	PCB Disconnect Tab	1840838-1	MAC
	Enclosure	1840833-1	MAC

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
TEMPERATURE CONTROL PWB ASSEMBLY PN 1842744-1			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1	10, 35V	189719-9	Hilton SWT35Z10
C2	0.1, 63V	189010-4	
C3	1.5, 50V	189016	Kemet
	CONNECTORS		
J1,J2,J3,J4,J5,J6,J7, J8,J9,J10	10-Pin	188500-29	Berg
	TRANSISTORS		
Q1	MJE6044	Ref Only	
Q2	2N3904	189700	Motorola
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	15, 10W	Ref Only	Dale RH10
R2	Potentiometer, 2K	188453-79	Helitrim
R3	10K	189227	RC07GF103J
R4	11K	189238-35	RC07GF113J
R5	2.2M	19238-61	RC07GF225
R6	3.9K	189224	RC07GF392J
R7	27K	188078	RC07GF273J
R8	3.9K	189224	RC07GF392J
R9	130	189200-17	RC07GF131J
R10	3.9K	189224	RC07GF392J
R11	150	189204	RC07GF151J
	INTEGRATED CIRCUITS		
U1	LM3911N	89975-74	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
140 MHz IF AMPLIFIER ASSEMBLY PN 843901-1			
	CAPACITORS		
All capacitors are in microfarads unless otherwise specified.			
C1,C2,C3,C4,C5,C6,C7,C8, C9,C10,C11,C12,C13,C14, C15,C16,C17	0.001	189010-1	
C18	47 pF	89018-50	
C19,C20	0.001	189010-1	
C21	0.1, 63V	189010-4	
C22	0.01	189010-2	
C23,C24,C25	0.1, 63V	189010-4	
C26,C27	10, 25V	189719-9	
C28	0.001	189010-1	
C29,C30	0.1, 63V	189010-4	
	DIODES		
CR1,CR2	1N6263	189440-86	
CR3	1N4148	89405	
CR4	1N4100, 7.5V	89438-59	
CR5,CR6	1N4148	189405	
	CONNECTORS		
J1,J2	Type F, PC Mount, Str	189396-48	
J3	R/A, 6 Pin	189351-36	Molex
	INDUCTORS		
All inductors are in microhenries unless otherwise specified.			
L1,L2,L3	8-1/2T, Core Shielded	189162-49	
L4	2-1/2T Unshielded	89162-69	
L5	Inductor	189169-37	Ferroxcube VK200-10/3B
L6	1.5	189169-70	
L7	1.0	89169-40	
L8	0.33	89169-3	Delevan 1025
	TRANSISTORS		
Q1,Q2,Q3,Q4	3SK-121	189888-53	
Q5	MSA0104	89888-81	
Q6	NE416B	189888-39	
Q7	MSA0204	89888-80	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
	RESISTORS		
All resistors are in 1/4W 5% ohms unless otherwise specified.			
R1	75	189280	RC07GF750J
R2	360	189200-11	RC07GF361J
R3	10	189231	RC07GF100J
R4	360	189200-11	RC07GF361J
R5,R6	10K	189227	RC07GF103J
R7	10	189231	RC07GF100J
R8	10K	189227	RC07GF103J
R9	1K, 1/8W, 1%	187460	RN55D1001F
R10	360	189200-11	RC07GF361J
R11	10	189231	RC07GF100J
R12,R13,R14	10K	189227	RC07GF103J
R15	360	189200-11	RC07GF361J
R16	10	89231	RC07GF100J
R17	18	89476	RC07GF180J
R18	51	89238-38	RC07GF510J
R19	470	89234	RC07GF471J
R20	18	89476	RC07GF180J
R21	390	89180	RC07GF391J
R22	24	89238-20	RC07GF240J
R23	240	89200-4	RC07GF241J
R24,R25	100K	189278	RC07GF104J
R26	100	89202	RC07GF101J
R27	1K	189220	RC07GF101J
R28	2.74K, 1/8W, 1%	187464	RN55D2R74F
R29	620	189200-10	RC07GF621J
R30	1.21K, 1/8W, 1%	189256-13	RN55D1R21F
R31	2.43K, 1/8W, 1%	189311	RN55D2R43F
R32	11K	189238-35	RC07GF113J
R33	100K	189278	RC07GF104J
R34	200K	189200-18	RC07GF204J
R35,R36	1K	189220	RC07GF101J
R37	220K	189238-33	RC07GF224J
R38	43	89481	RC07GF430J
R39	24	89238-20	RC07GF240J
R40	10K	89227	RC07GF103J
R41	10K, 1/8W, 1%	89326	RN55D1003F
R42	732, 1/8W, 1%	88541-77	RN55D732RF
	INTEGRATED CIRCUITS		
U1	TL084	189976-96	
U2	78MGU1C	189889-82	
	FERRITE BEADS		
Z1,Z2	Inductor, Ferrite Bead	89161-20	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
MISCELLANEOUS			
	Spacer	843301-1	MAC
	Enclosure	1841802-2	MAC
	Covers		
	Top	1841803-1	MAC
	Bottom	184803-2	
	RF Absorber	1808614-9	MAC
	Label, ID	1842069-1	MAC
	IF Amp Mounting Plate	1841928-1	MAC

SECTION 8
ANTENNA ASSEMBLY DIAGRAMS/PARTS LISTS

LIST OF DIAGRAMS

Figure 8-1. Antenna Assembly PN 1841480 8-3
Figure 8-2. Antenna Mount Assembly PN 1841924 8-5

LIST OF PARTS LISTS

1. Antenna Assembly PN 1841480-1 8-7
2. Antenna Mount Assembly PN 1841924 8-8

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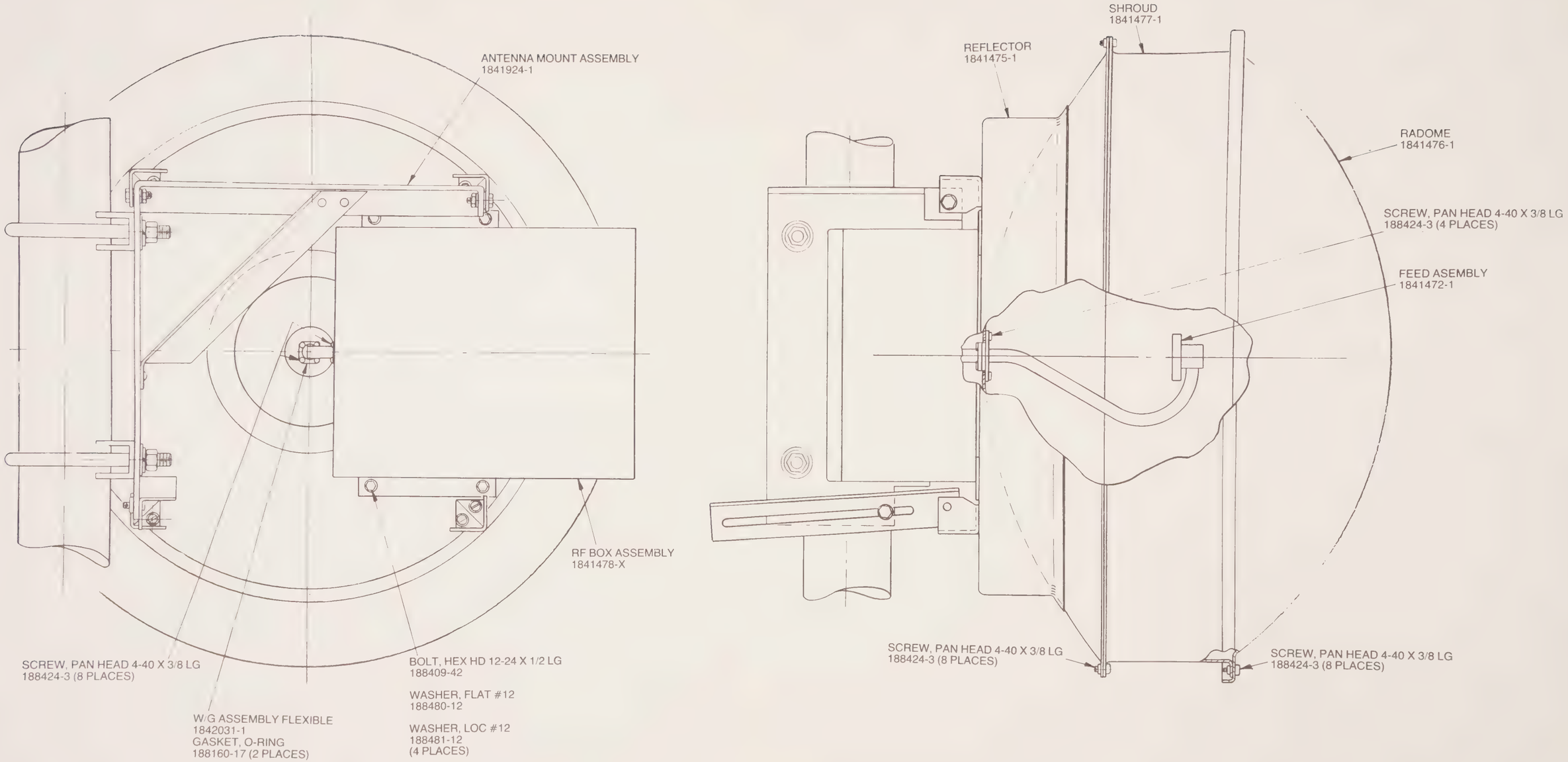
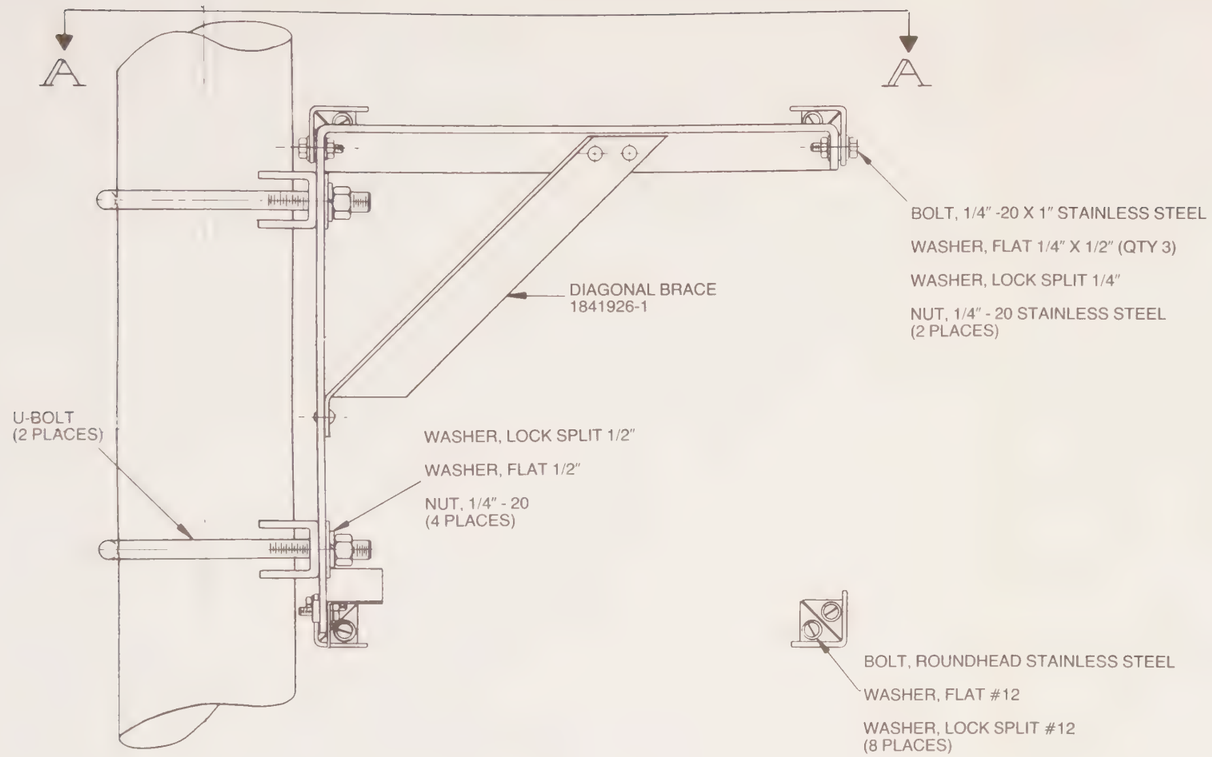
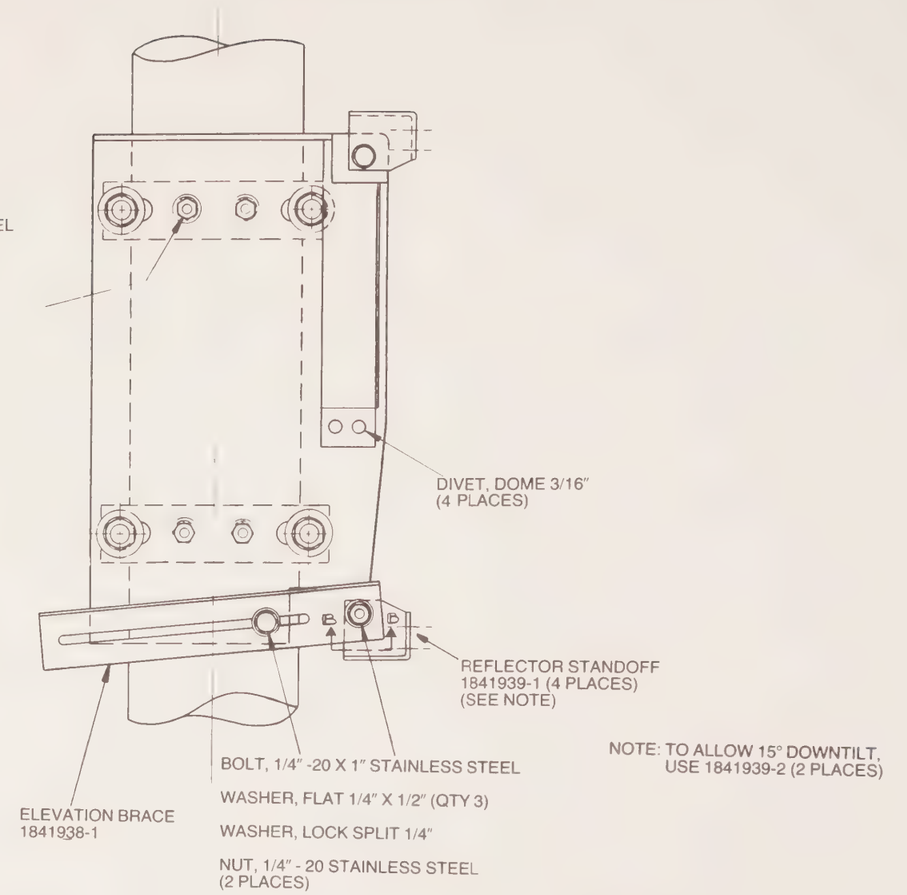
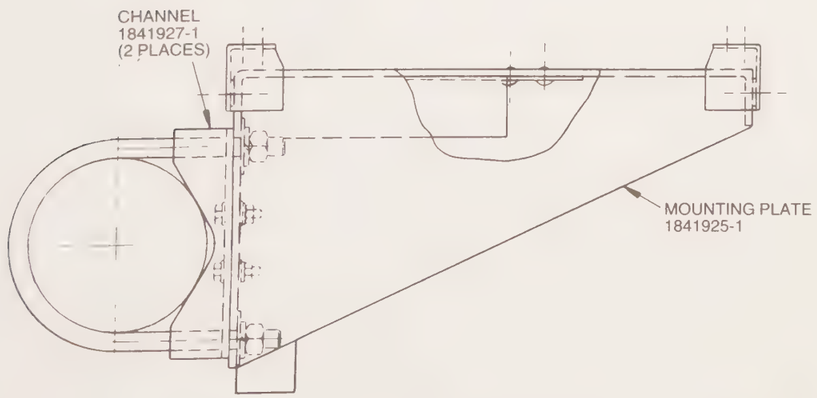


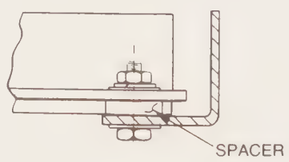
Figure 8-1. Antenna Assembly PN 1841480-1







VIEW A-A



VIEW B-B

Figure 8-2. Antenna Mount Assembly
PN 1841924-1

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
ANTENNA ASSEMBLY PN 1841480-1			
	Reflector	1841475-1	MAC
	Radome	1841476-1	MAC
	Shroud	1841477-1	MAC
	Feed Assembly	1841472-1	MAC
	Antenna Mount Assembly	1841924-1	MAC
	RF Box Assembly	1841478-99	MAC
	W/G Assembly (Flexible)	1842031-1	MAC
	Gasket, O-Ring, UG-598A/U	188160-17	

REF DES	DESCRIPTION	PART NO.	SIMILAR TO
ANTENNA MOUNT ASSEMBLY PN 1841924			
	Mounting Plate	1841925-1	MAC
	Brace		
	Elevation	1841938-1	MAC
	Diagonal	1841926-1	MAC
	Reflector Standoff	1841939-1	MAC
	Channel 1-1/2 x 1-1/2 x 3/16	1841927-1	MAC
	Reflector Standoff	1841939-2	MAC

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